

MANUFACTURERS RECORD

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A Weekly Newspaper Devoted to the Industrial, Financial, Railroad,
Mining, Contracting, Engineering, Building, and General
Business Interests of the South and Southwest

Vol. 61
No. 5

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Single Copy 15 Cents

In This Issue:

Progress in Road Improvements in the South.

Iron Ore From Eastern Texas Shipped to
Philadelphia.

Fixing Nitrates From the Air for Agriculture.

Commerce at Southern Ports in the Past
Calendar Year.

Portland Cement Production in 1911.

Application of Electricity to Farm Operations.

Alphabetical Index, Page 118.
Classified Index, Pages 112 to 117.
Classified Opportunities, Pages 80, 81 and 82.

BALTIMORE, FEBRUARY 8, 1912

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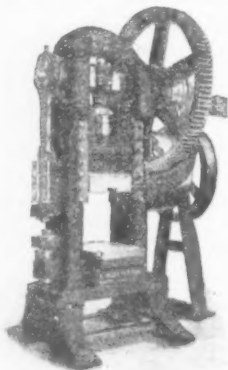
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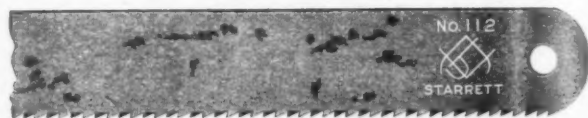
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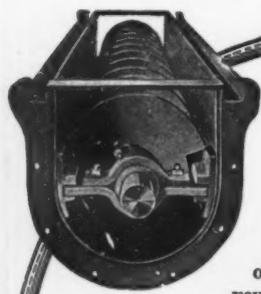
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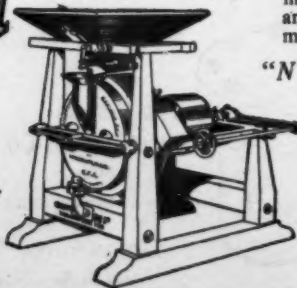
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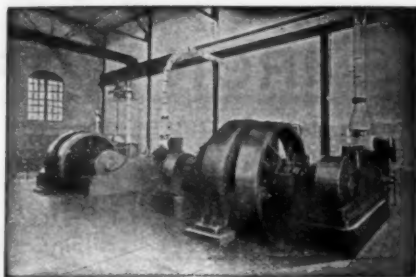
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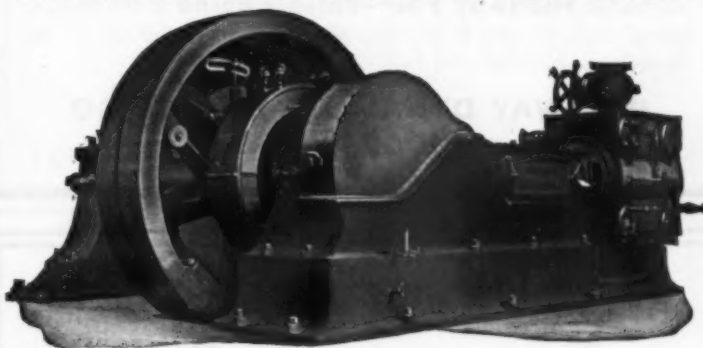
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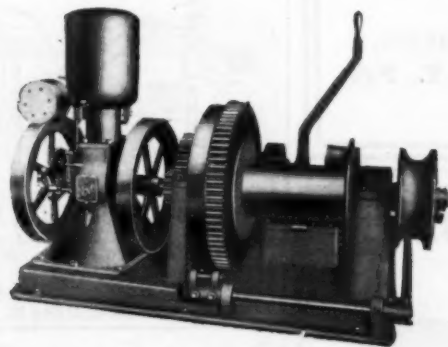
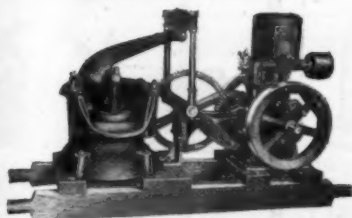
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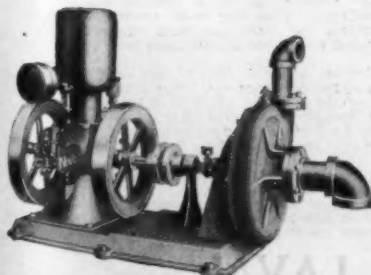
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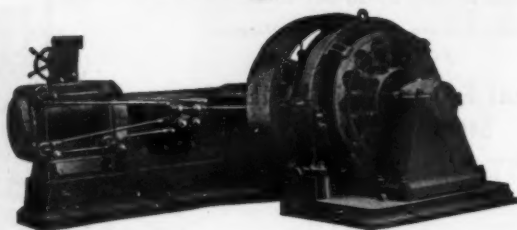
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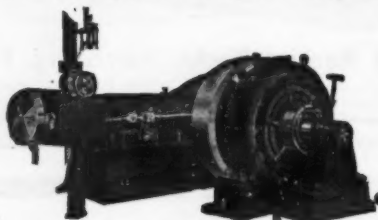
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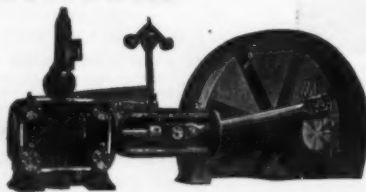
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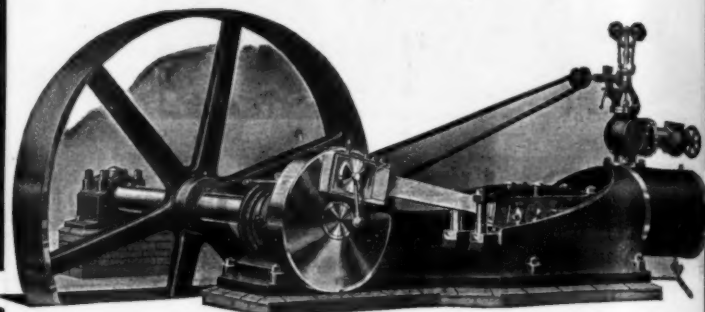
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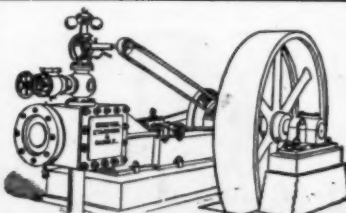


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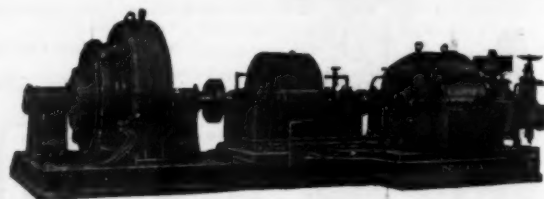
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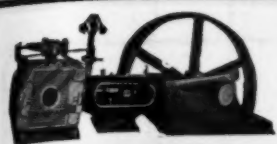
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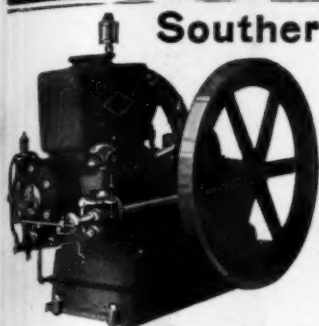
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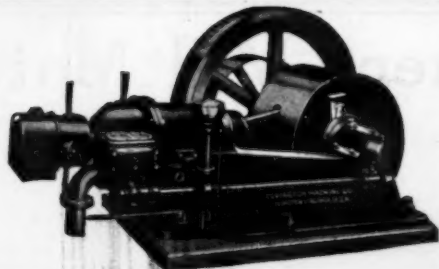
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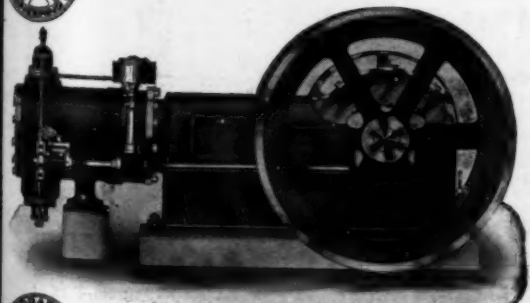
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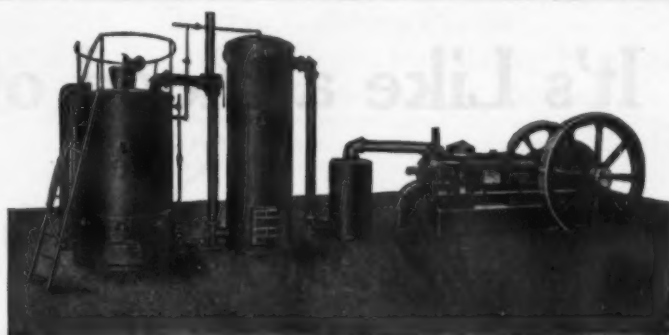


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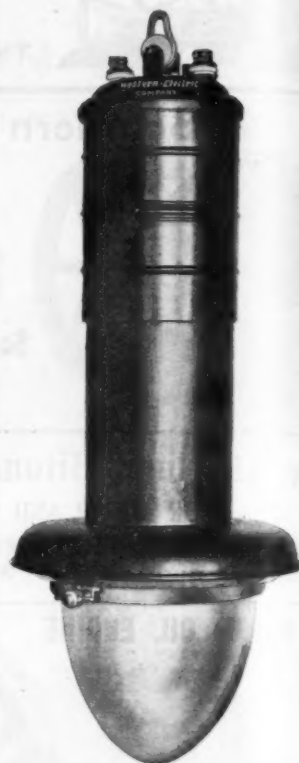
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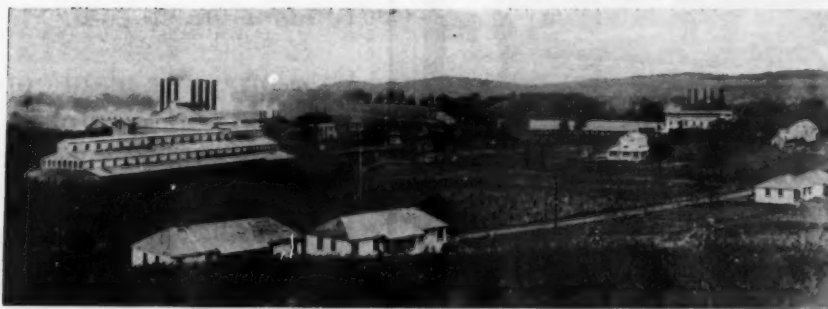
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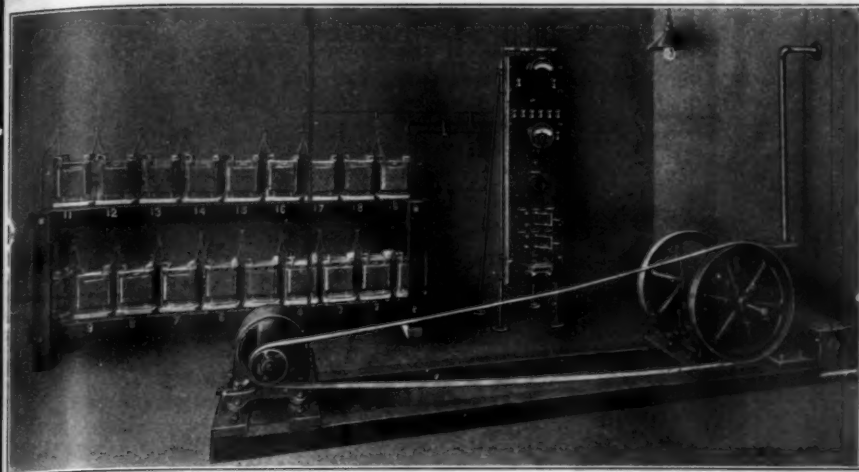
It is the most economical because the motor uses power only in direct proportion to the work performed. When the motor stops the power cost stops. There are no line shafts, pulleys and line shaft belts to maintain. A couple of flexible wires transmit the power.

It is the most satisfactory because your machines can be placed in the most advantageous positions with regard to continuity of operation. They do not have to be arranged to conform to the rigid location of line shafting.

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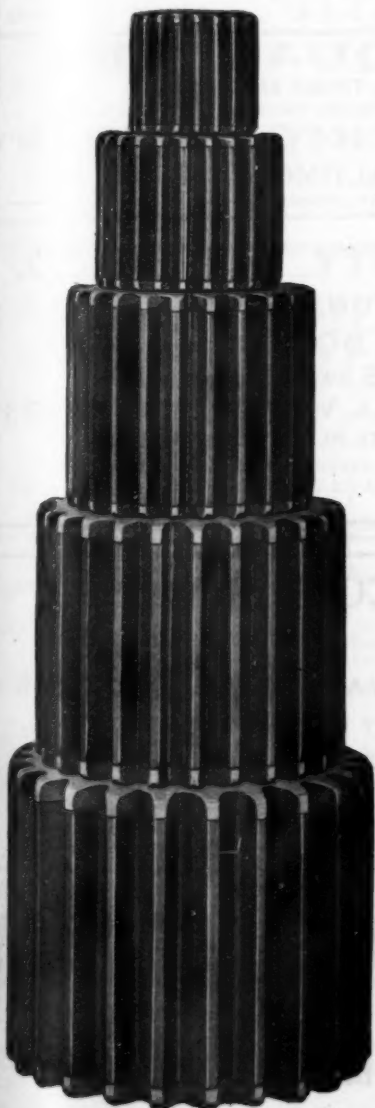
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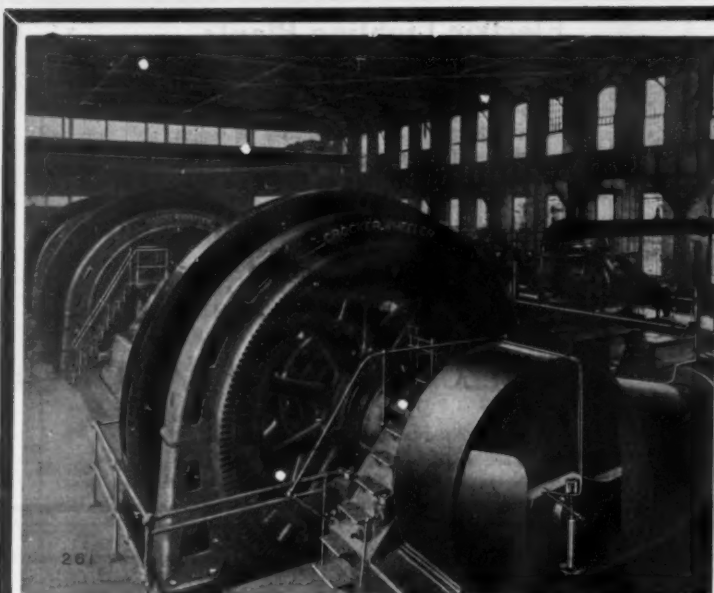
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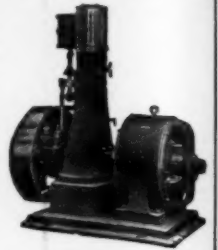
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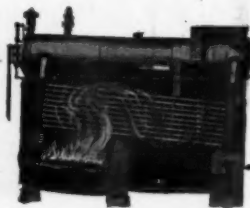
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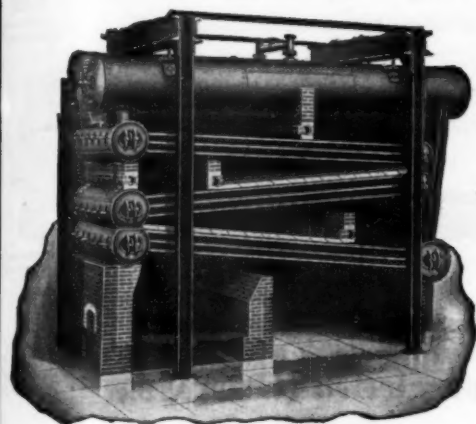
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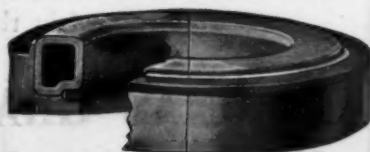
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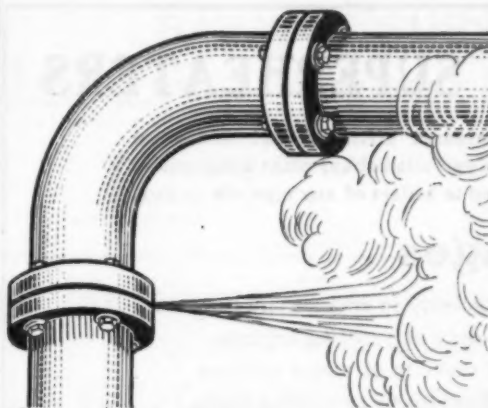
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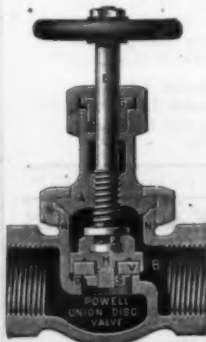
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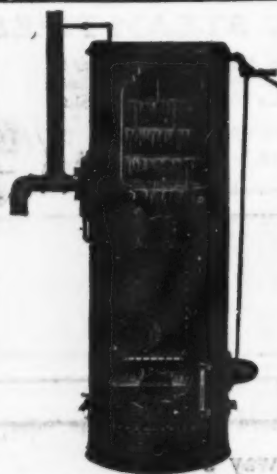
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Improved Heater and Lime Extractor.

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HEATERS SERVE TWO PURPOSES

Heating of Feed Water by Exhaust Steam
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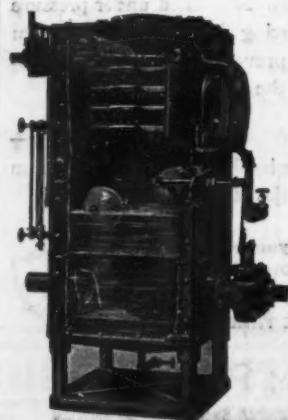
1/2 inch scale in Boilers requires 15% more fuel.
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For Economy Use The Blake-Knowles Open Feed Water Heater

It combines the functions
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Yours very truly,

Madison Electric Power Co.

By J. W. Reeve, Jr., Mgr.



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Let us send printed matter and
fully explain the bars to you

THOMAS GRATE BAR CO.
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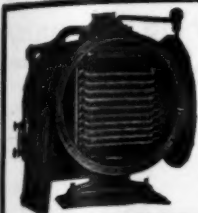
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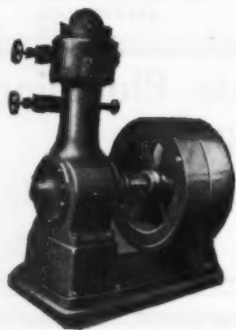
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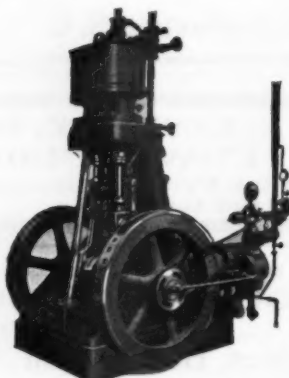
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1/2 to 6 tons, double cylinder 8 to 17 tons.
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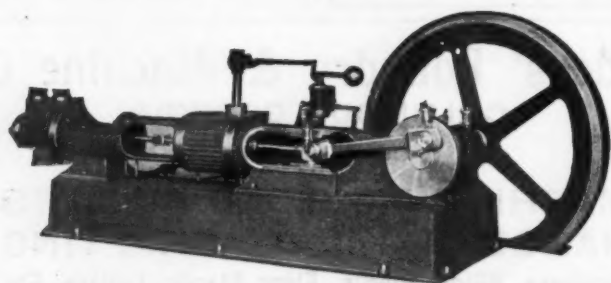
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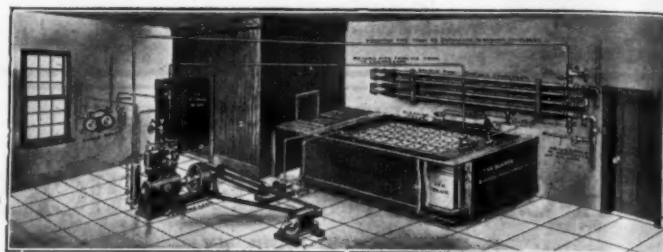
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of Wrought Iron Pipe Coils and
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Clean Plant—Less Work—Cheaper Insurance

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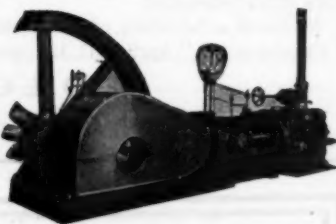
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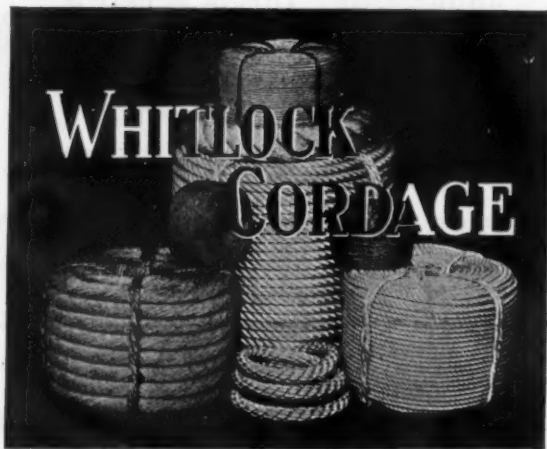
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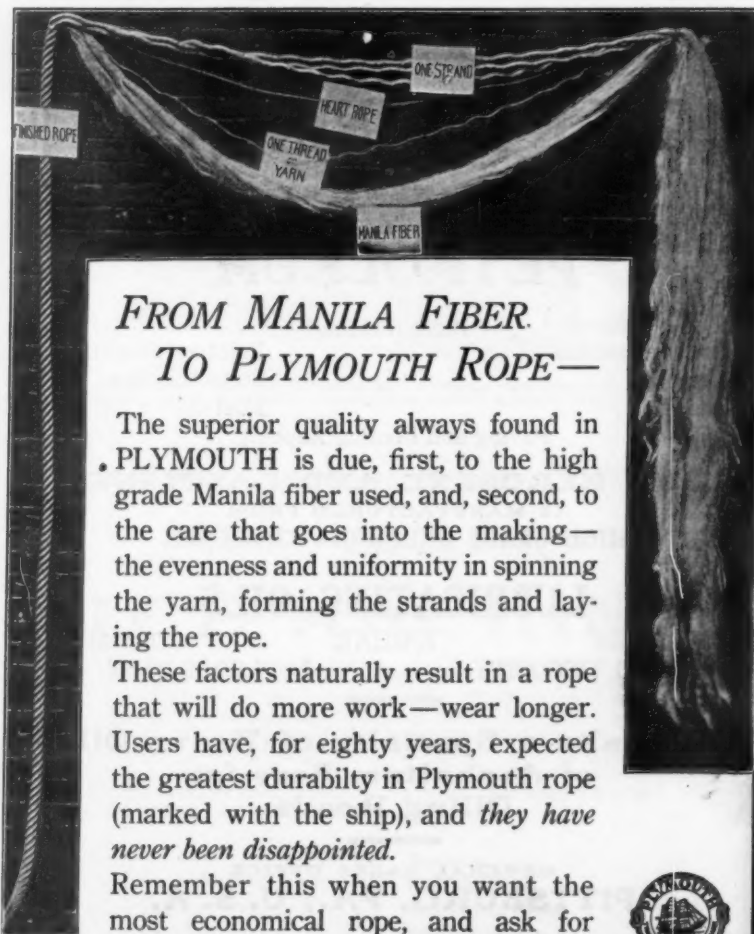
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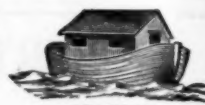
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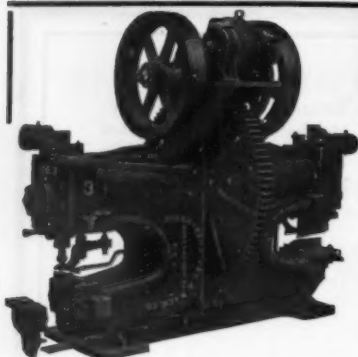
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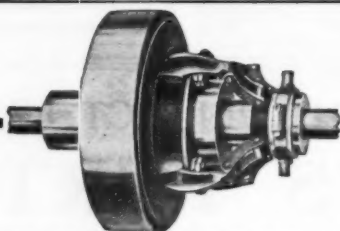
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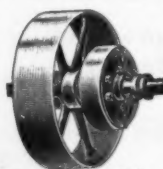
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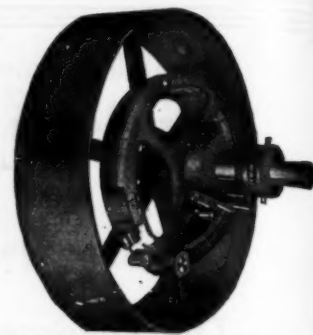
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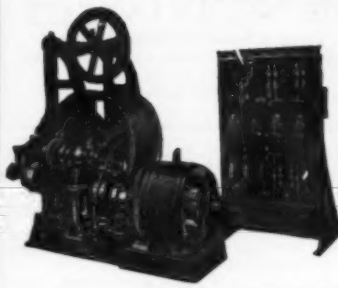
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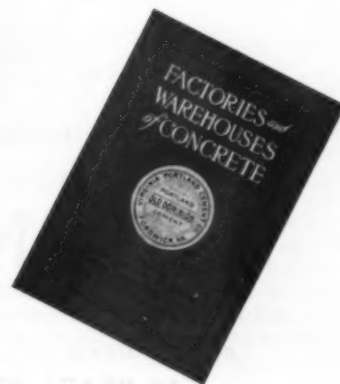
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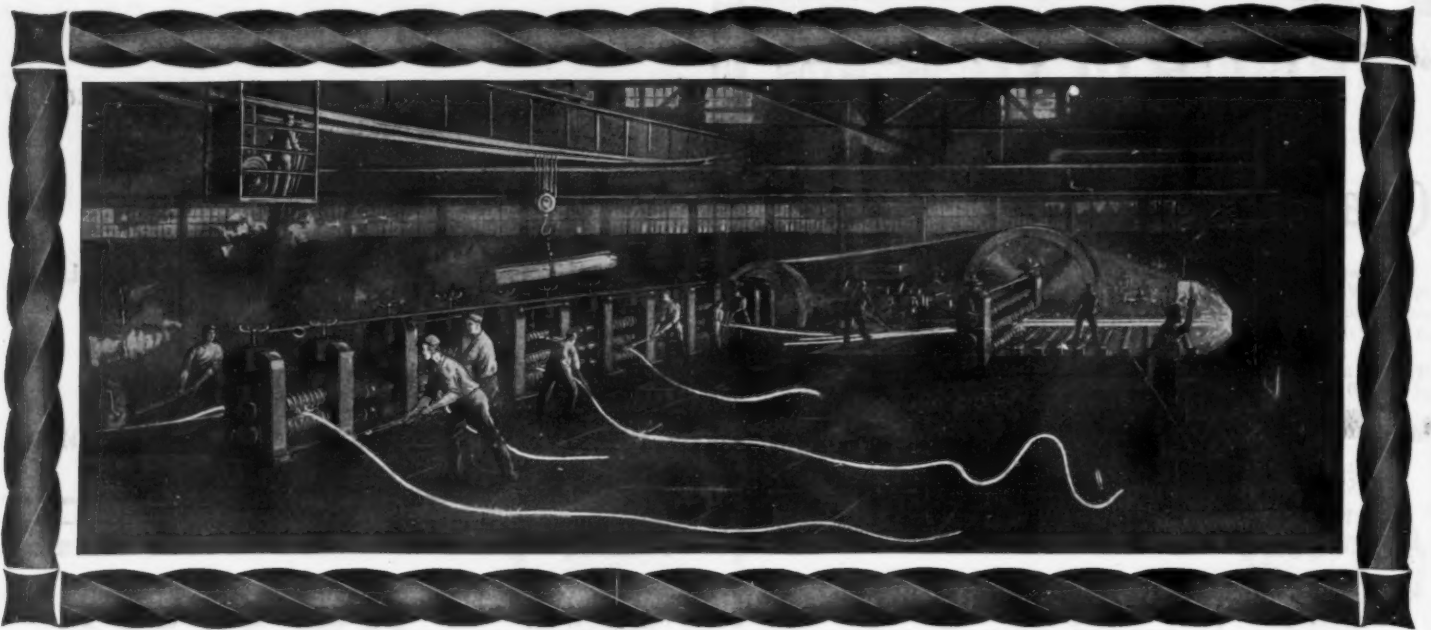
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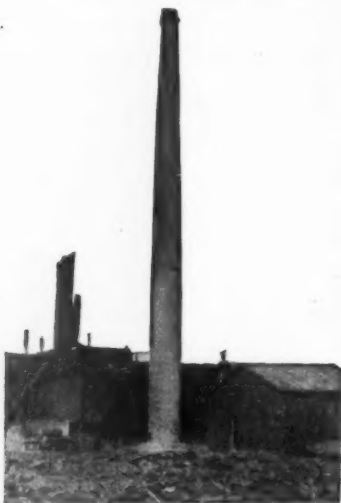
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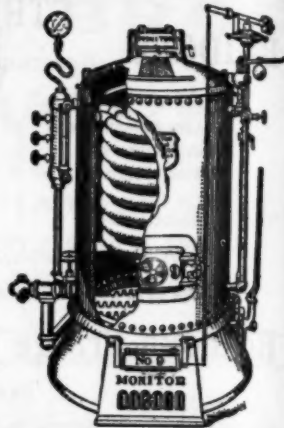
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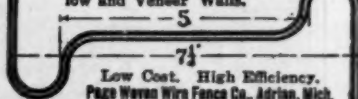
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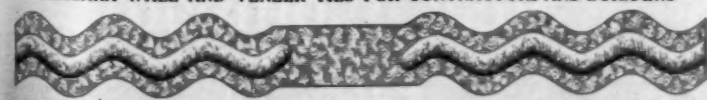
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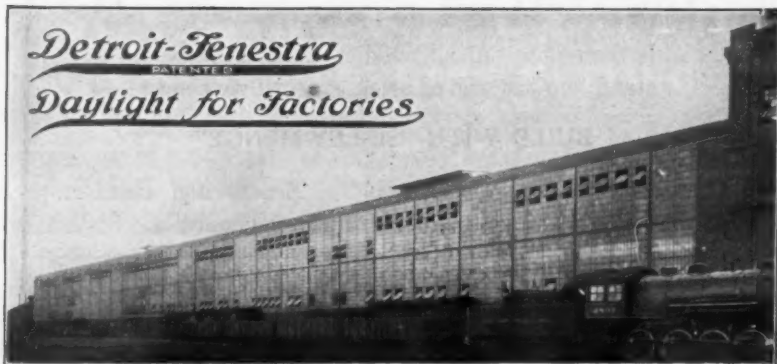
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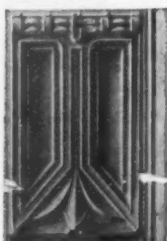
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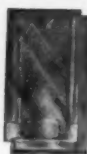
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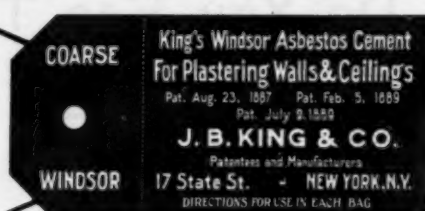
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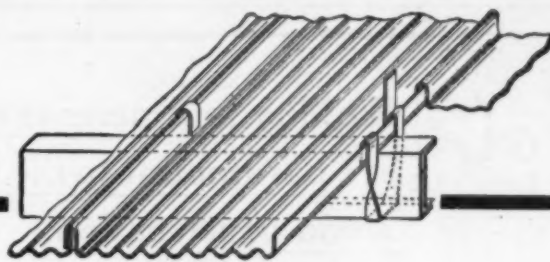
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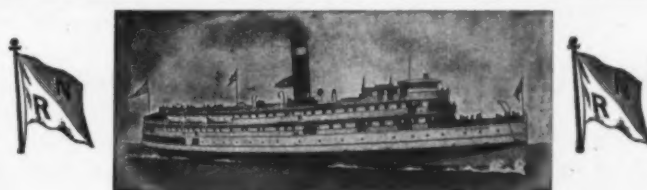
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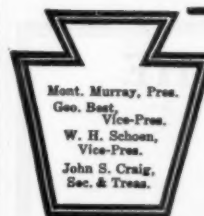
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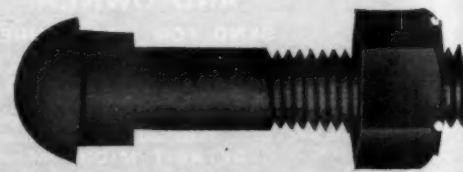
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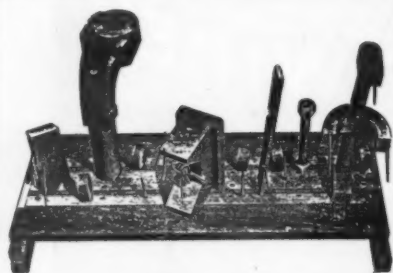
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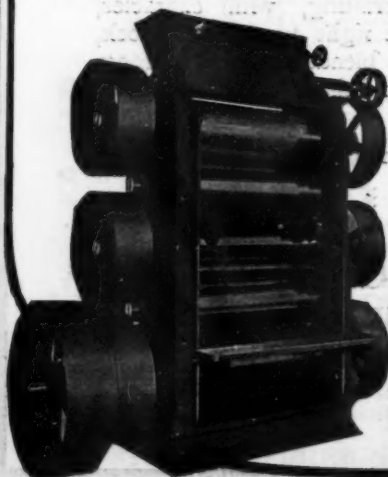
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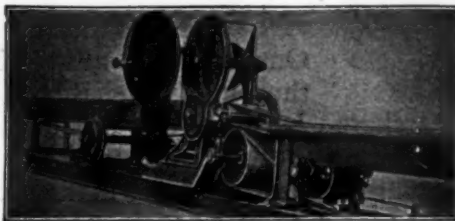
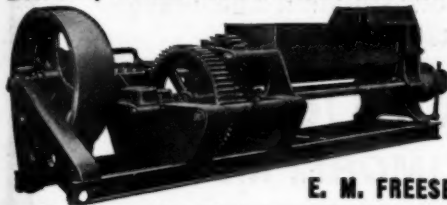
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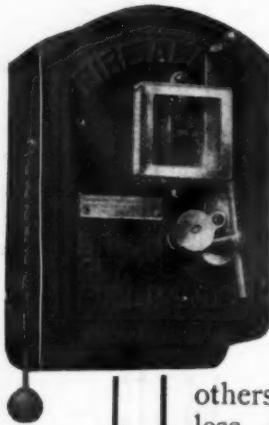
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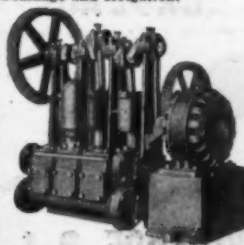
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A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER

Trade-Name Registered in the U. S. Patent Office

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BALTIMORE, FEBRUARY 8, 1912

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BALTIMORE, FEBRUARY 8, 1912.

ON ENCOURAGING INDUSTRIES.

Referring to the report of a proposed addition to the Mount Vernon-Woodberry Mills at Baltimore, Albert L. Scott of Lockwood, Greene & Co., Boston, while suggesting that the report is premature, incidentally makes a suggestion worthy of serious consideration by all Baltimoreans having the industrial progress of their city at heart. Mr. Scott writes that a consolidation of the weaving departments of the various mills of the Consolidated Cotton Duck Co. has been in contemplation for some time, though no immediate action as to construction of the plant is expected, and even its location has not been definitely fixed. He adds:

The logic of the situation, however, and the growth of the cotton business in Baltimore demand that the mills there be put in better operating condition. One thing which is hampering us somewhat is the decision as to what is best to do with reference to Baltimore is the miserable condition of the roads connecting the various mills of the Mount Vernon-Woodberry group. It is a crying shame that the city of Baltimore should permit such a state of affairs to exist as the roads between these mills. If you could use your good offices in bringing the city to a realization of its treatment of industries already at its doors, you would do a great service to the industry, and we believe to the city of Baltimore. Our idea is to favor the development of cotton manufacturing in Baltimore, but at times we are greatly discouraged over the lack of assistance in Baltimore, especially since we are receiving inducements from cities all over the South to locate some of these textile properties with them.

In general a small city and a new one is in a better position to offer material inducements for the location of industries than is an old and large city like Baltimore. The very largeness and long

settlement hamper freedom of action and limit to some extent opportunities to offer special inducements. As a matter of fact, no city of the same size is at present carrying on work of general improvement greater than that being done at Baltimore, including its modern sewerage system, its public parks and its highways, all of which must ultimately be to the advantage, direct or indirect, of investors of all kinds, including manufacturers. Because Baltimore is a long-established city, and in its general expansion has followed lines of construction set when surface drainage was the obvious method of disposing of wastes, the engineering difficulties in the construction of the sewerage system have been far greater than if the system was being installed contemporaneously with the laying out of a new city. Likewise there are greater difficulties, some of them practical and some of them sentimental, in the way of equipping the whole city with modern highways. That work cannot be done all at once, and where politics, unfortunately, may intervene in such material things as laying out streets, one part of the city may be improved to the neglect of the other, to say nothing of available appropriations not being sufficient to speed the work already planned. However, the effect of neglect in attending to details which appeal to investors, as suggested in the letter from Boston, is worth studying. It is not enough to deal in generalities about the favorable location of Baltimore for the receipt of materials for industry and as a point of distribution of manufactured goods, about the contented and capable supply of labor, about its educational institutions, etc., to attract to the city the kind of new citizens that will benefit it in being benefited by it. The substantial newcomer wants definite information about a variety of matters, including the methods of raising taxes, and, what is of equal importance, if not greater, the methods of spending money derived from taxation. Poor sanitary arrangements or backwardness in improving streets in a portion of the city appealing otherwise to capital will certainly be a drawback upon an inclination to invest that has been encouraged by knowledge of the spirit for general improvement.

This is true of every city in the South. Lack of good highways in city and country will greatly retard the development of any community. The Mount Vernon-Woodberry Mills, to which Mr. Scott refers, have for 50 years or more been the leading makers of cotton duck in the world, but so intolerably bad are some of the roads and streets that lead from the depots to these mills, which are within the city limits, that the hauling of cotton to the mills and of the finished product from them is a great burden. Baltimore is thus endangering one of its greatest industries. Every city that aims to develop its business activities must study this situation.

THE SOUTH—PAST, PRESENT AND FUTURE.

Are you interested in the progress and prosperity of the South? Are you interested in knowing more broadly than you have ever known before, or than any other one man has ever known, of the advantages and resources and possibilities of the South? If so, you will need to have a copy of "Thirty Years of Southern Upbuilding" to be issued on February 22, the thirtieth anniversary of the founding of the MANUFACTURERS RECORD. Into that publication will be gathered information about the South in a form not to be found in any library of America, for it will present in a great statistical showing the advance of individual interests, the advance of individual States, and of the South as a whole. It will cover these great interests and this vast section in a way as no other section of this or any other country has ever been covered so far as we know. Many of the foremost experts of the United States, leaders in public affairs and in the financial and business world, will present their views as to the future of the South. Thus, on one hand, will be found the story of what the South has in material resources, what it has achieved in material upbuilding, and, on the other, a forecast of its future by men of world-wide influence in scientific, financial and business circles. Nothing so comprehensive as "Thirty Years of Southern Upbuilding" has ever before been undertaken as to the South, and we believe that nothing of a similar character and on so broad a scale has ever been attempted of any country.

A copy of "Thirty Years of Southern Upbuilding," which will be known as Part II of our issue of February 22, bound in paper cover, will be sent free to every subscriber to the MANUFACTURERS RECORD. The price will be, in paper cover, 50 cents a copy; in cloth binding \$1.25, and in leather \$2.

Many of the foremost business institutions of the South, railroads, banks, manufacturing enterprises and individuals have ordered from one or two copies up to hundreds of copies each, with a view to sending "Thirty Years of Southern Upbuilding" to their friends, or correspondents, or business associates in this country and abroad, that in this way they may help to show to the whole world the matchless resources of the South, the material progress which this section has made, and the views of men whose words will carry weight throughout the business world as to its future. This publication ought to be in every business office in the country, in every public and private library, for it will be of as much interest to the professional man, to the student of economic development, as to the merchant and the manufacturer and other business men. To the intelligent farmers of the country, to land operators and to colonization agencies it will be of equal interest, for here are presented facts never before published as to the agricultural achievements and potentialities of the South.

If in the light of these facts you are interested in having a copy for your library, in addition to the paper-bound copy which you will receive if you are a subscriber to the MANUFACTURERS RECORD, send in your order promptly. If you are interested in convincing any friend or business acquaintance that there is no other section equal to the South, if you want them to know what it has achieved and what is the testimony as to its future of the highest authorities in the United States, then order a few extra copies to be mailed to friends and business associates.

TOURIST TRAVEL TAXING RAILROADS AND RESORT HOTELS.

The resort regions of the South are in most cases crowded to the utmost limit of their facilities to take care of the health and pleasure seekers who have been driven South in greater numbers probably than ever before by the intense severity of the weather throughout the North and West. So great has been the rush of tourist travel that it has been difficult to secure Pullman accommodations, and advices to the MANUFACTURERS RECORD are to the effect that on many trains even the day coaches are crowded not merely with local travel, but with tourists moving from point to point in the South and unable to secure Pullman accommodations for day trips. A few days ago one of the largest hotels in Florida, which had been advertising in the MANUFACTURERS RECORD, asked us to discontinue its announcement because the rush of travel had been so great that it could scarcely take care of what it had. This, we understand, is typical of a very large part of the tourist region of the South.

This situation as to railroads and hotels is only a hint of what the coming years will show in an ever-swelling volume of business. Travel to the South to escape the rigors of Northern and Western winters and to enjoy the balmy, summer-like temperature of many of these resort places, will increase more rapidly than the facilities of the railroads and the hotels to accommodate it.

With the enormous increase in the wealth of the United States, and the addition every 10 years of 17,000,000 or 18,000,000 to our population, there will of necessity be a very great increase in the number of people who for pleasure or health seek the balmy climate of Southern regions. This demands of the railroads an improvement of their facilities sufficient to keep up with the growth of travel. As a matter of fact, if Southern railroads advertised in Northern and Western papers for winter travel as freely as the Western and Pacific Coast roads advertise California, they would be so completely swamped that it would be impossible for them to handle a sufficient number

of trains on existing tracks to meet the demand of those who would turn their faces to Florida, to the Central South and to the Gulf Coast with the first sign of the wintry blasts which nearly everybody would like to escape.

It is important that this increasing demand for adequate railroad facilities and for hotel accommodations should receive very careful attention, for otherwise within a few years this business will expand far beyond the ability of the railroads and hotels to handle.

GOOD ROADS IN THE SOUTH.

A few weeks ago the MANUFACTURERS RECORD showed that expenditures in the South for the improvement of public highways in 1911 aggregated \$45,900,354, or more than 32 per cent. of the \$141,291,125 spent for that purpose in the whole country, and that between 1904 and 1911 such expenditures in the South nearly doubled, while in the rest of the country their increase was only at the rate of 70 per cent. Additional facts in this connection are derived from a report by the Office of Public Roads of the National Department of Agriculture on the mileage and cost of public roads in this country in 1909. The mileage of all roads and the mileage of improved ones in the South in 1909, with a comparison of the improved mileage in 1904 and 1909 in the South, is shown in the following table:

| States. | Total mileage. 1909. | Improved mileage. 1904. | Improved mileage. 1909. |
|---------------------|----------------------|-------------------------|-------------------------|
| Alabama..... | 49,633 | 1,720 | 3,263.93 |
| Arkansas..... | 36,445 | 236 | 1,065.25 |
| Florida..... | 17,579 | 885.5 | 1,752.35 |
| Georgia..... | 82,230 | 1,634 | 5,978 |
| Kentucky..... | 53,744 | 9,486 | 10,114.95 |
| Louisiana..... | 24,962 | 34 | 329.50 |
| Maryland..... | 16,773 | 1,570 | 2,142.30 |
| Mississippi..... | 39,619 | 149 | 342.25 |
| Missouri..... | 107,923 | 2,733 | 4,755.50 |
| North Carolina..... | 48,255 | 1,259 | 2,313 |
| Oklahoma..... | 71,325 | | 561 |
| South Carolina..... | 32,075 | 1,878 | 3,534.75 |
| Tennessee..... | 45,913 | 4,285 | 5,353.50 |
| Texas..... | 128,971 | 2,128 | 4,896 |
| Virginia..... | 43,339 | 1,000 | 1,902.75 |
| West Virginia..... | 32,109 | 254.5 | 591.40 |
| Total..... | 830,991 | 29,852 | 48,716.43 |
| United States..... | 2,159,645.14 | 153,530.4 | 190,476.32 |

The total length of roads in the South, which has an area of 945,088 square miles, was 830,991 miles, or 1.14 miles to each square mile. Their aggregate length in the rest of the country, with an area of 2,029,271 miles, was 1,368,654 miles, or one mile of road for each 1.69 miles of territory. The length of improved roads in the South was 48,716 miles, or one mile for each 19.39 miles of territory, and the length in the rest of the country was 190,476 miles, or one mile for every 14.31 square miles of territory. The increase in improved mileage in the South in the five years between 1904 and 1909 was 18,864 miles, or at the rate of 63 per cent., and in the rest of the country 18,081 miles, or at the rate of something more than 14 per cent. Between 1904 and 1909 the South built 784 miles more roads than did the rest of the country.

In spite of such gratifying progress, Kentucky, which leads the South in the length of improved highways, 10,115 miles, ranks only fifth among the States of the country in such mileage, being surpassed by Indiana, with 24,956 miles; Ohio, 24,106 miles; New York, 12,787 miles, and Wisconsin, 10,167 miles.

The tendency, however, in the South, indicated in the fact that in the five-year period it added to the mileage of improved roads in the country more than half of the total, is emphasized by the fact that of 10 States making marked progress in the increases seven

were Southern, Georgia increasing its improved mileage from 1634 to 5978, or by 4344, equal to 265 per cent.; Missouri from 2733 to 4755.5, or by 2022.5, equal to 74 per cent.; South Carolina from 1878 to 3534.75, or by 1656.75, equal to 88 per cent.; Alabama from 1720 to 3263.93, or by 1543.93, equal to 89 per cent.; Tennessee from 4285 to 5353.5, or by 1068.5, equal to 25 per cent.; Florida from 885.5 to 1752.35, or by 866.85, equal to 97 per cent., and Maryland from 1570 to 2142.3, or by 572.3, equal to 37 per cent., compared with the increases in Washington from 1976.5 to 4520.68, or by 2544.18, equal to 129 per cent.; Pennsylvania from 2160.78 to 3364.76, or by 1194.98, equal to 55 per cent., and New Jersey from 2422.3 to 3377.85, or by 955.56, equal to 35 per cent.

Of all the road mileage of the country 8.66 per cent. was improved in 1909, and of the total mileage in the South 5.8 per cent. The percentages of improved mileage by States were as follows: Alabama, 6.58; Arkansas, 2.97; Florida, 9.97; Georgia, 7.27; Kentucky, 18.82; Louisiana, 1.32; Maryland, 12.77; Mississippi, .86; Missouri, 4.40; North Carolina, 4.79; Oklahoma, .50; South Carolina, 11.02; Tennessee, 11.66; Texas, 3.80; Virginia, 4.38, and West Virginia, 1.84. Of all the States of the country 22 had a percentage of improved mileage greater than the average for the country, Massachusetts leading, with nearly half its roads improved, and of the 22 States five in the South—Florida, Kentucky, Maryland, South Carolina and Tennessee—had a percentage of improved mileage greater than the average for the country.

In some respects the South has an advantage over other parts of the country in respect to the materials for road building, as to climate and as to other factors. In much of the South the temperature rarely falls below the freezing point or maintains that low degree, while in parts of the North and West there are temperatures at times ranging from 40 degrees to 50 degrees below zero. Therefore, generally speaking, the lighter and less expensive types of road may be built in the South, while, on the other hand, the rainfall, having an annual average from 50 to 60 inches in the Gulf States and two or three others of the South, call for a more durable and expensive type of road than the earth and gravel roads of the arid regions of the West, which require special treatment for laying dust and preserving the surface. In the South the cost of labor for road work, according to the calculations of the Office of Public Roads, ranges from 75 cents to \$1.25 a day, and the cost of double teams, with driver, from \$2.50 to \$4 a day, while in the North and West road laborers receive from \$1.50 to \$2 a day, and the cost of double teams, with drivers, ranges from \$3.50 to \$5 a day. The character of the soil, the lay of the land, the location of road material, the kind and number of bridges to be built must also be taken into consideration in estimates of the cost of roads. But the work still to be accomplished in the South, as well as in the rest of the country, is suggested in the fact that of the total mileage of improved roads in 1909 in the United States 59,237 were of stone, 102,874 of gravel and 28,373 of other materials, including shells, bituminous macadam, brick, sand-clay, etc., the sand-clay roads having an aggregate length of 24,001 miles, and of that total the South having 13,950—Alabama, 1107; Arkansas, 378; Florida,

1017; Georgia, 4327; Louisiana, 168; Maryland, 23; Mississippi, 103; Missouri, 2; North Carolina, 730; Oklahoma, 196; South Carolina, 3218; Tennessee, 127; Texas, 2354; Virginia, 186, and West Virginia, 14.

A RAILROAD LESSON FROM ABROAD.

If, notwithstanding the shortcomings of our postal service, there be some people who fancy that our railroads would give more satisfaction to the public if taken over by the Federal Government, consideration of public experience in France since its Government has operated the Western Railway ought to be enough to convince them that State-operated railroads are far from being things of beauty and joys forever.

Travelers and other individuals disposed to pay attention to the service of transportation companies have known for several years that the Western Railway of France is a joke in the railroad world. It has been criticised time and again for its track and rolling stock being in bad order, for accidents resulting therefrom, for delays in service, and, in fact, for general inadequacy. The road is a conspicuous example of the things that "they do not do better in France," to paraphrase a saying familiar to travelers and readers.

Recently, however, according to reports from abroad, the Western has outdone itself in absurdity by rearranging its schedules in such a manner as to show that it is determined to "progress backward," if in no other way. Instead of accelerating its trains, it is slowing them up, or, to speak exactly, the trains are lengthening the schedules, for that seems to be the fact in the case. The time of a certain train from Paris to Rouen was set at 1 hour and 45 minutes. But it got into the habit (every experienced traveler knows how certain trains acquire reprehensible customs) of running about 21 minutes late, losing that much time between Paris and Rouen. The unsophisticated railroader employed by a privately-owned company would innocently think that the operating department needed "jacking up," because the schedule had been maintained before and could be again, if proper efforts were made. But that isn't the way the sophisticated railroader working for the Government-owned road read the situation. Not he! If the schedule was not lived up to, it was the schedule's fault, and it must mend its ways. So they were duly mended, and now travelers (presumably) depart and arrive at Paris and Rouen, respectively, in truthful harmony with the published figures, but apparently doomed to witness no improvement in train speed.

Other instances of mending the schedules on this French road are also reported. One train has been started 11 minutes earlier and scheduled to arrive at its destination 13 minutes later than under the old schedule, this being done to account for 24 minutes which the train consumed in addition to its former schedule allowance. Another one lost about half an hour on each trip and adopted a like method to make it seem honest with the public. But whether the trains are going to run slower than the new schedules—upon a theory that schedules are not made to be maintained, but only to show what could be done if the railroad chose to do it—will be seen in due season.

The foregoing are examples of what one might expect anywhere upon a Government-owned railroad. Yet it need not be imagined that there are not some

good railroads in France, because excellent and progressive lines do exist there, but they are owned by stockholders and bondholders, and not by the State, and it is generally acknowledged by students of railroading that the best of Government railroads in any country do not, as a rule, if ever, equal the privately-owned roads in either efficiency or progress.

Americans may think their stars that the railroads of this country are privately-owned enterprises. The best of our lines are equal, if not superior, to the best of any other land. In several respects, certainly, they are conspicuous in efficiency. The motive power is of notable strength, and the cars, both freight and passenger, are of remarkable capacity. In the transportation of freight particularly these characteristics of equipment have enabled the lines to establish tariffs which, for cheapness, are the marvel of other countries, but which do not satisfy all of our own people, some of whom cry out now and then for more Federal and State regulation. Thoughtful railroad men admit the justice of some regulation by the Government because the roads enjoy public franchises and charters and perform services to the people at large. But there is great difference between regulation and oppression, and some of the regulation imposed in certain sections smacks of tyranny. Such strangling use of authority the people themselves should prevent by insisting that their legislators shall deal quite as justly with railroad companies as they do with individuals. No matter whether Government control is direct or indirect, it can accomplish quite as undesirable results in either case and the people themselves get the worst of it in the end. Self-protection demands that they compel justice for the carriers.

FOR THE GOOD OF FLORIDA.

A striking illustration of the splendid attitude which one city in a growing section should show toward its neighbors is given in the following comment of the *Florida Times-Union* of Jacksonville, inspired by the completion into Key West of the Florida East Coast Railway, one of the most dramatic engineering feats of the world. The *Times-Union* says:

The building of the East Coast Railway into Key West will give new life to that city which for nearly a century has sat at the entrance of the Gulf seeing an enormous commerce go by. This commerce has little benefited the city. If ships stopped in the harbor it has been only for coal. The large majority sailed by and none landed cargoes there except such goods as were intended for the use of the people of the island.

We predict a great change from these conditions. The United States imports a vast amount of perishable fruits every year from the countries of Central America. This class of freight has been going principally to Mobile and New Orleans. We believe that hereafter nearly all of it will be landed at Key West and transferred from steamer to railway there.

This one thing alone will give employment to a large increase in population and the growth of a city in one line of industry is a powerful incitement to growth in other lines. But in the building of cities men play a greater part than natural advantages. The completion of this road with the advantage it offers will give the people of Key West that confidence in the future of their city that will energize them for the accomplishment of what they expect. Key West will become a city of hustlers, who will push her forward to greatness.

Key West is now nearly as large as Jacksonville was ten years ago. We believe that in ten years she will be nearly as large as Jacksonville is now. The other cities of Florida have also prospects of a rapid growth. The opening of the Panama Canal will add vastly to the growth and business of Pensacola, Tampa and Key West, and to

a smaller extent will benefit Jacksonville. We expect the next census to show a combined population of 350,000 for the four largest cities of Florida and a number of others will pass into the 10,000 class.

All these predictions as to the future of Key West are reasonable, but the point to be borne in mind is the utter absence of any feeling of jealousy that Key West may prosper at the expense of Jacksonville or other Florida cities. The *Times-Union* recognizes at first hand the fact, clear to observers at a distance, that, with all its wonderful progress in the past few years, Florida has really only begun to develop, and that the betterment of any part of the State or any city in it will be the betterment of all the cities and of the whole State.

Between 1900 and 1910 the population of the United States increased 21 per cent., but the population of Florida increased twice as rapidly, or at the rate of 42.4 per cent. In the 10 years the value of Florida's farm lands increased 203 per cent. and the value of its farm buildings 144 per cent., against an increase of 118 per cent. in the value of farm lands and of 77 per cent. in the value of farm buildings in the United States. In the past decade the value of the products of Florida factories increased 112.7 per cent., against an increase in the country of 81.7 per cent. But Florida's population of 777,900 is scant compared with its possibilities. The State has only about 14 persons to the square mile, which is less than half the average density of population in the whole South. The South is not beginning to suffer from overpopulation and when Florida has a population as dense as that of the South at present that State will not be at all crowded, though it will have then 1,920,135 inhabitants. Increased population will come with the greater development of the State's natural resources in minerals, timber and soil, with the expanding commerce of its ports and with more railroad construction, and in all that development the cities of Florida, which are alert to their opportunities and filled with the spirit that animates the editorial of the *Times-Union*, will have their full share.

That spirit was manifested at Tampa on the occasion of the visit of members of Congress and others to attend the ceremonies of the opening of the Florida East Coast Railway to Key West. These visitors were invited to Tampa, and the men of that city were so determined to impress them with the advantages of the West Coast of Florida generally that they neglected to show their guests what Tampa itself possessed, and spent the time giving them trips to other localities.

These incidents are full of the richest sort of promise for Florida's growth, and they ought to become the conventional incidents all over the South. Emulation among cities to leave nothing undone that helps to make the most of themselves by all legitimate means is to be desired, even if it involves one city's adopting and adapting features for growth that have succeeded in other cities. But as soon as emulation begets hostile rivalry of others leading to resort to slurs and reflections upon them it becomes a snare and a delusion, and, instead of benefiting all, injures all, and especially the city where generous emulation has degenerated into petty rivalry. The Florida cities have set an example of the right kind, and East Coast and West Coast will share the profit.

SOUTHERN EXPORTS IN 1911.

In the calendar year 1911 merchandise valued at \$716,256,264 was exported through Southern customs districts. That was an increase over the value of merchandise exports in 1910 of \$36,236,514, or at the rate of 5.3 per cent. The increase in all other districts of the country was from \$1,186,239,154 to \$1,376,270,582, or by \$189,033,428, equal to 15.9 per cent. In 1910 the 7,097,299 bales of cotton exported had a value of \$530,824,227, while the 8,607,401 bales exported in 1911, 1,510,102 more bales than the number exported in 1910, had a value of \$517,053,575, or \$13,770,647 less than the 1910 value. The decline in the price of cotton accounts in large measure for the small percentage of increase in the value of exports in Southern districts compared with the rate of increase in all other districts of the country and for the changes shown in the following table comparing the value of exports in 1910 and 1911:

| Atlantic Districts. | 1910. | 1911. |
|-----------------------|-----------------|-----------------|
| Baltimore, Md. | \$74,122,370 | \$94,546,755 |
| Beaufort, S. C. | 33,000 | 45,000 |
| Brunswick, Ga. | 13,933,368 | 14,906,652 |
| Charleston, S. C. | 7,494,296 | 10,828,418 |
| Fernandina, Fla. | 7,096,910 | 7,501,082 |
| Georgetown, D. C. | 3,974 | |
| Georgetown, S. C. | 21,820 | 8,328 |
| Jacksonville, Fla. | 2,634,109 | 2,195,319 |
| Newport News, Va. | 4,859,851 | 5,835,900 |
| Norfolk & Ports, Va. | 8,945,316 | 9,576,308 |
| Richmond, Va. | 29,193 | 13,692 |
| St. Marys, Ga. | | 29,504 |
| Savannah, Ga. | 62,283,208 | 82,383,825 |
| Wilmington, N. C. | 27,404,766 | 24,081,123 |
| Gulf Districts. | 1910. | 1911. |
| Apalachicola, Fla. | 254,224 | 630,399 |
| Galveston, Tex. | 201,875,443 | 197,174,811 |
| Key West, Fla. | 1,118,354 | 1,683,575 |
| Mobile, Ala. | 29,351,343 | 28,284,351 |
| New Orleans, La. | 155,218,749 | 153,615,151 |
| Pearl River, Miss. | 9,182,886 | 11,007,506 |
| Pensacola, Fla. | 20,379,458 | 20,863,363 |
| Sabine, Tex. | 20,378,452 | 23,453,569 |
| St. Marks, Fla. | 1,010,370 | 1,159,450 |
| Tampa, Fla. | 4,942,738 | 5,131,638 |
| Mexican Border Ports. | 1910. | 1911. |
| Brazos de Sant., Tex. | 231,276 | 834,532 |
| Corpus Christi, Tex. | 13,737,609 | 10,494,338 |
| Paso del Norte, Tex. | 8,210,308 | 6,026,843 |
| Saluria, Tex. | 5,083,605 | 3,455,625 |
| Interior Ports. | 1910. | 1911. |
| Kansas City, Mo. | 180,961 | 476,384 |
| Louisville, Ky. | 585 | 10,975 |
| St. Louis, Mo. | 1,408 | 2,752 |
| Total | \$680,019,750 | \$716,256,264 |
| All districts | \$1,866,258,904 | \$2,092,526,846 |

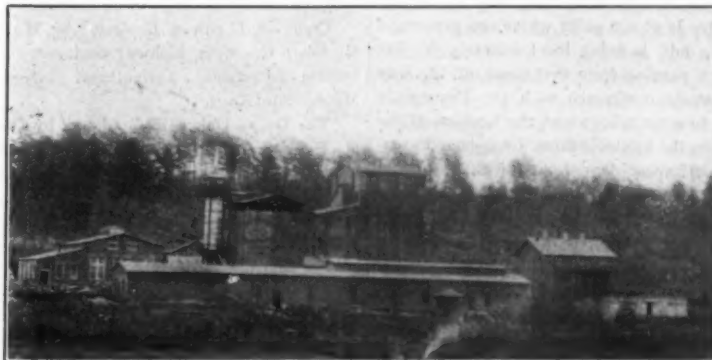
Of the increase in districts not in the South \$106,060,203, or 53 per cent., was at North Atlantic ports, and the increase in South Atlantic districts, \$43,089,825, was more than sufficient to overcome the decrease of \$708,205 at Gulf districts and of \$6,451,300 in Mexican border districts, and the rate of increase in South Atlantic districts was 20.6 per cent., as against 12.4 per cent. at North Atlantic districts. Of 31 Southern districts and ports, 20 had increases in 1911 over 1910 and 11 decreases, and of those in the rest of the country 45 had increases and 14 had decreases. Twenty-four of the 37 Atlantic districts, North and South, had increases, 7 of the 10 Gulf districts, 2 of the 5 Mexican border districts, 9 of the 10 Pacific Coast districts, 19 of the 23 Northern border districts and 4 of the 5 interior districts. The decreases in Mexican border districts were due to the warfare during most of the year, and the decreases of 4,700,632 at Galveston and 1,603,599 at New Orleans were plainly the effects of the low price of cotton since the opening of the present season, and in the case of the latter to decreased exports of the staple since September. Galveston exported 248,665 bales more in 1911 than in 1910, but the value of such exports was \$29,192,011 less. New Orleans exported 118,099 fewer bales, and the value was \$23,505,009 less.

NITRATES REDUCED FROM AIR.

An Important Element of Fertilizers to Be Produced by Electric Energy.

A remarkable example of the application of scientific principles to practical use which will be watched with interest by the industrial world will be illustrated in the manufacture of nitrate of lime by the Southern Electro-Chemical Co., Nitrolee, S. C., in which the nitrogen will be reduced from the atmosphere by means of the electric arc. This company's plant, shown in the illustration, will be in readiness for operation as soon as the immense blower which is to force the strong current of air through powerful electric arcs is received from Europe.

The importance of this work lies in the



THE SOUTHERN ELECTRO-CHEMICAL CO.'S PLANT, NITROLEE, S. C.

demand for nitrates in the manufacture of fertilizers, powder, etc., and the decrease in the available sources of supply of nitrates. With the great hydro-electric developments already made in the South and the plans for still greater works, and the accompanying increase in the demand for fertilizers, the far-reaching importance of this method of reducing nitrates from the air may be appreciated.

A successful outcome of this initial production at Nitrolee will result in greatly increasing the plant. The power is derived from the two great hydro-electric plants of the Southern Power Co. at Great Falls and Rocky Creek, which are capable of generating 80,000 horse-power. The nitrate plant will utilize about 4000 horse-power, and will produce about five tons of nitric acid every 24 hours, which will make about eight tons of nitrate of lime. The limestone used will be shipped to Nitrolee.

The patent rights of Dr. Harry Pauling were acquired several years ago and the Southern Electro-Chemical Co. was organized in New York with A. H. Burroughs, president, and R. B. Arrington, secretary and treasurer, for the purpose of developing plans for applying the principles contained in the process. The basic principle of the Pauling process is the utilization of electric energy to raise the temperature of the air as blown through the electric arc to a heat of 3000 to 3500 degrees Centigrade. This intense heat changes the elements of the air from the mixture as it ordinarily exists to a chemical combination forming oxide of nitrogen, which, when combined with water, forms nitric acid. This nitric acid is then combined with limestone to form nitrate of lime.

The plant at Nitrolee consists of several electric furnaces, oxidation tanks, steam receptacles, cooling chambers and absorption towers. The furnace is constructed of specially prepared fire-clay brick, with masonry and iron support. The two electrodes in each furnace provide the electric arc through which the air is driven. The nitrous oxide thus produced escapes through a channel built along the casing of the furnace in the fireproof

gas-collecting pipes, which convey the gases to the steam boiler-house, where the temperature is reduced to 1900 degrees. The temperature is further reduced in the cooling tanks, and then the gases are conveyed to the oxidation tanks, then condensed in the absorption towers, whence it is conveyed to receptacles containing crushed limestone, where it forms nitrate of lime. This finished product is worth about \$50 a ton.

One of the elements of efficiency is that this plant will consume surplus power and will operate for 24 hours per day, thus supplying a demand for power at times when electric-light plants, mills, factories, transportation lines, etc., are not using the power from the hydro-electric plant.

SOUTHERN PAPER CO. PLANS.

Construction of Pulp and Paper Mills Begun by \$750,000 Corporation.

[Special Cor. Manufacturers Record.]
Pascagoula, Miss., February 2.

What will be, perhaps, the largest manufacturing plant in South Mississippi, if not in the State, is now in the course of erection on the shores of the Escatawpa River, about one mile north of Laine, Miss., and about three and one-half miles from this city. It is the great paper and pulp mill of the Southern Paper Co., whose capital stock of \$750,000 is held principally in London, England. The Southern Paper Mill Co. was organized about a year ago to manufacture paper, by a new process just then invented, from the slabs and other refuse of the South Mississippi sawmills. A shipload of material was last March carried to London for testing, and after a most thorough test it was found satisfactory and steps were taken immediately to organize the company, and a spot on the Escatawpa River, near Pascagoula and Moss Point, was selected for the site of the plant. Here the Southern Paper Co. secured by purchase some 80 acres of land, and the work of erecting the necessary buildings has already commenced. A few weeks ago contract was let to a Biloxi (Miss.) contractor to erect the office building, of two stories and eight rooms, and a contract was also let to erect the machinery-room, a building 30x130 feet, of brick and concrete. This week bids were called for the pulp mill, a building that will be 100 feet in width and 800 feet in length, part two and part three stories high. This building will be of brick, with foundation of cement laid down deep in the earth and filled in with concrete. It is stated that it will take 100 carloads of material besides that which can be found in the neighborhood to complete this building, and possibly nearly one year to complete it and to install the machinery. The paper mill will be of the same size and of the same material. Contract for the erection of this building will be given out later on. The Louisville & Nashville Railroad has already surveyed a route from Laine to the plant site, a distance of one mile, and will

build a siding to convey material and handle the products of the mill.

The mills will be on the south bank of the Escatawpa River, about half a mile northeast of the Pascagoula Northern Railroad bridge and about 10 miles from the point where the Escatawpa River debouches into the Pascagoula River in the city of Moss Point. The Pascagoula River pours itself into the Gulf of Mexico just eight miles south of Moss Point, and has a dredge channel over the bar at its mouth 17½ feet deep, but the United States engineers have recommended to Congress a channel of 22 feet deep over bar at the mouth of the Pascagoula and a channel of the uniform depth of 22 feet to Moss Point. Now, though the depth of channel at the mouth of the Pascagoula River is only 17½ feet, the Escatawpa River is at the point where the paper and pulp mill is being located nearly 40 feet deep, ranging from that depth all the way from its confluence with the Pascagoula up to some miles above the location of the mills, the United States dredgeboat Pascagoula having cleared out the channel from the mouth of the Pascagoula to the point where these mills will stand.

At Moss Point there are 8 or 10 sawmills, whose waste material will be carried to the paper and pulp mills and there converted into paper. The swamps of the Pascagoula and Escatawpa, that are almost endless in extent, abound in great variety of tupelo, gum, oak, cypress, beech, etc.

During the first week of this year the stockholders of the Southern Paper Co. held a meeting in London and elected the following directors: J. L. Dantzer, president of the Dantzer Lumber Co. at Moss Point; A. S. Benn and F. H. Benn of the Hunter-Benn Lumber Co., London; Jos. H. Wallace of New York, J. G. F. Lowson of New York, William Wallace of London. The officers are: J. L. Dantzer, president; A. S. Benn, first vice-president; Jos. H. Wallace, second vice-president; William H. Hoffstra of New York, treasurer; C. W. Brownson of New York, secretary; Lily E. Gunderson of New York, assistant secretary. The executive committee will be composed of Messrs. Dantzer, Hoffstra and Wallace.

The spot selected for the site of these paper works is just one mile north on a direct line from the spot where natural gas was lately discovered in a well 2440 feet deep. The erection and operation of the mills near this point promise to bring about an industrial revolution in this section and to do much toward bringing out its latent possibilities.

CHAS. E. CHIDSEY.

To Reclaim 4416 Acres.

The Bayou Cane Land Co. of New Orleans has awarded contract for reclaiming its 4416 acres of land in Terrebone parish, between Shriever and Huma. This contract will involve an expenditure of \$63,000, and it was awarded to the Crescent Construction Co. of Wvannimee, Ind., John A. Kruse of Chicago and New Orleans being the engineer in charge. The land is expected to be ready for cultivation next year. Meyer Eiseman of New Orleans, secretary of the company, is credited with the following statement:

"The farmers from the North and West will come here and locate their residences upon the property. They will come to one of the finest sections of the State and one that is famed as a sugar country. There will be no difficulty in draining the land, which is at present inundated with water, and that because of the fact that it is located far above the sea level. No pumping will be necessary, and all that will have to be done is to dig ditches and

the drainage will be done by gravity and find its natural level."

CEMENT USERS' ASSOCIATION.

Tentative Program for the Eighth Annual Convention.

Arrangements are being made for holding the eighth annual convention of the National Association of Cement Users at Kansas City, Mo., March 11-16. As indicated in the tentative list of papers to be read, a great many important subjects are to be taken up and discussed.

The first annual Kansas City cement show will be held during the week from March 14-21, and this will prove an extra inducement to members and those interested in cement work of every kind to attend the convention.

The tentative program is as follows:

"Concrete Highway Bridges," by Walter Scott Gearhart, highway engineer, extension department, Agricultural College, Manhattan, Kans.

"The Dallas Oak Cliff Viaduct," by Ira G. Hedrick, consulting engineer, Kansas City, Mo.

"Flat Slab Bridges," by W. H. Finley, assistant engineer Chicago & Northwestern Railroad, Chicago, Ill.

"An Improved Concrete Pavement," by E. W. Groves, city engineer, Ann Arbor, Mich.

"Cement Paving as Constructed at Mason City, Iowa," by F. P. Wilson, city engineer, Mason City, Iowa.

"Report of Committee on Roadways, Sidewalks and Floors," by C. W. Boynton, chairman.

"The Use of Cement in Irrigation Work," by F. H. Newell, chief director United States Reclamation Service, Washington, D. C.

"Reinforced Concrete in Agriculture," by W. A. Collings, engineer, Builders' Material Supply Co., Kansas City, Mo.

"Methods of Testing Sewer Pipe," by Duff A. Abrams, assistant professor engineering experiment station, University of Illinois, Urbana, Ill.

"Advantages and Durability of Cement

Sewer Pipe," by Gustave Kaufman, engineer the Wilson & Baillie Manufacturing Co., Brooklyn, N. Y.

"Reinforced Concrete Water Purification Works," by Dr. Walter M. Cross, city chemist, Kansas City, Mo.

"The Control Beam as a Field Test for Concrete," by Frits E. von Emperger, consulting engineer, Vienna, Austria.

"Continuous Concrete Beams," by Dr. E. Probst, consulting engineer, professor Royal Technical High School, Berlin.

"Notes on the Deformation in the Webs of Rectangular Concrete Beams," by H. C. Berry, assistant professor of material of construction, University of Pennsylvania, Philadelphia, Pa.

"The Design and Construction of a Reinforced Concrete Dome, 220-Foot Span," by Dr. S. J. Traver, chief engineer, Breslau, Germany.

"The Design of Reinforced Concrete Domes," by R. Brussel, president Reinforced Concrete Co., St. Louis, Mo.

"Report of Committee on Reinforced Concrete and Building Laws," by A. E. Lindau, chairman.

"The Construction of Concrete Grain Elevators," by John S. Metcalf, consulting engineer, Chicago, Ill.

"The Design of Concrete Grain Elevators," by E. Lee Heidenreich, chief engineer Builders' Material Supply Co., Kansas City, Mo.

"Report of Committee on Measuring Concrete," by Robert A. Cummings, chairman.

"Report of Committee on Nomenclature," by Peter Gillespie, chairman.

"Report of Committee on Specifications and Methods for Concrete Materials," by Sanford E. Thompson, chairman.

"Report of Committee on Treatment of Concrete Surfaces," by L. C. Wason, chairman.

"Report of Committee on Insurance," by W. H. Ham, chairman.

"The Handling of Concrete in the Construction of the Panama Canal," by S. B. Williamson, engineer Pacific division, Panama.

"Concrete Piles and Harbor Work," by Dmitri Alexsev, engineer Russian Northern Railway, Moscow, Russia.

"Methods of Construction Used in the Arbuckle Building, Brooklyn," by R. C. Wilson, assistant engineer Turner Construction Co., New York, N. Y.

"Construction of the Hollow Reinforced Concrete Dam of the Portland Railway, Light & Power Co.," by Robert S. Edwards, consulting engineer, Portland, Ore.

"Discussion of Advantages and Comparative Cost of the Hollow Concrete Dam," by W. L. Church, president Ambursen Hydraulic Construction Co., Boston, Mass.

"The Construction of the Fireproof Type of Schoolhouse, with Separately Molded Members," by Theodore H. Skinner, architect, Oneida Community, Ltd., Oneida, N. Y.

"Discussion of the Use of Calcium Chloride as a Preventative from the Freezing of Concrete," by Richard K. Meade, chief engineer Tidewater Portland Cement Co., Baltimore, Md.

"Some Notes on the Value and Comparative Cost of Reinforced Concrete Telegraph Poles," by George Gibbs, chief engineer of construction Pennsylvania Railroad, New York, N. Y.

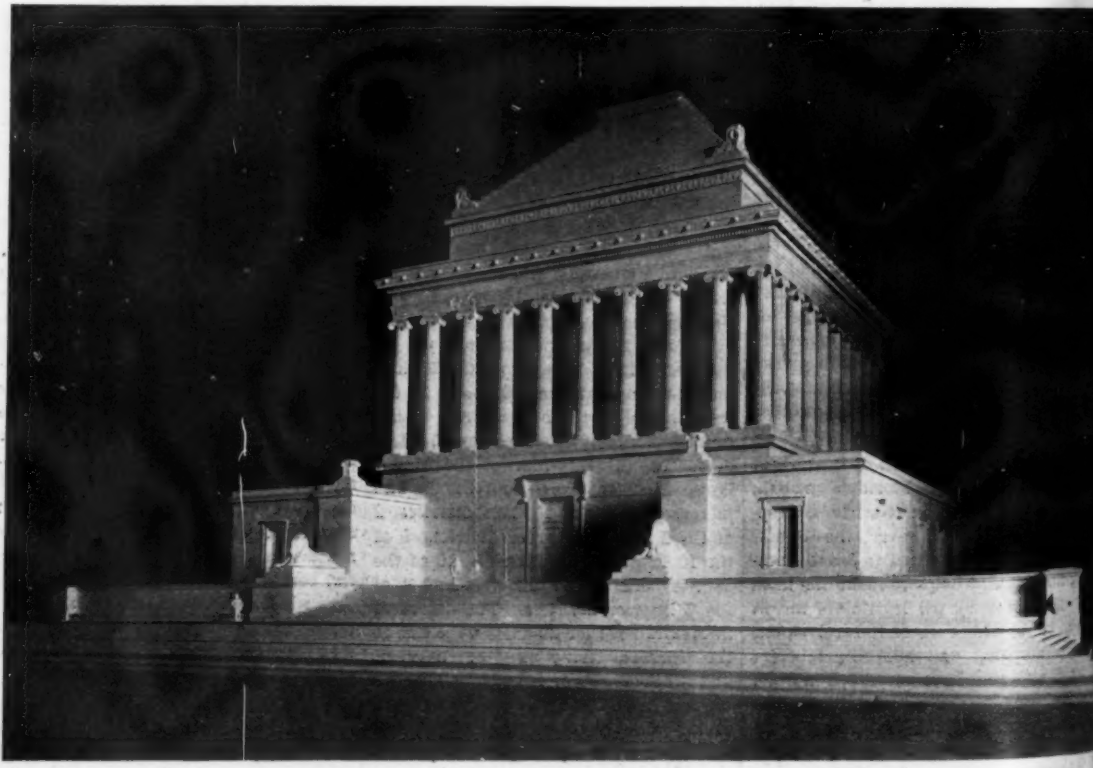
"Concrete Fenceposts," by W. J. Towne, assistant engineer Chicago & Northwestern Railroad, Chicago, Ill.

"Reinforced Concrete Telegraph Poles," by Robert A. Cummings, consulting engineer, Pittsburgh, Pa.

"Report of Committee on Building Blocks and Cement Products," by P. S. Hudson, chairman.

"The Concrete Block Industry in Russia," by Alexander Zuberbuhler, engineer, Moscow, Russia.

Secretary G. W. Carter of the Business League of Greenwood, Miss., informs the MANUFACTURERS RECORD that the citizens have begun a movement for the paving of a mile and a half of the principal business streets.



MASONIC TEMPLE AT WASHINGTON.

Under construction for Ancient and Accepted Scottish Rite of Freemasonry for Southern Jurisdiction of United States; four stories, with two basements; 156x156 feet; golden dome 160 feet above street; granite and limestone construction; golden sunburst over portals; 32 columns, each 33 feet high; apartments for 32 States of Southern Jurisdiction on first floor, with suite of rooms for grand commander, library, executive chamber, etc.; cathedral in upper part of structure 75 feet square and 75 feet high; printing office in basement; interior finished in selected hardwoods, marble and ornamental plaster; cost about \$1,250,000; architect, John Russell Pope, New York; contractor, Norcross Brothers Co., Worcester, Mass., and Washington.

TO SHIP ORE TO PHILADELPHIA.

development of an Iron Mining Enterprise in Texas.

(Special Cor. Manufacturers Record.)

Port Bolivar, Tex., February 1.

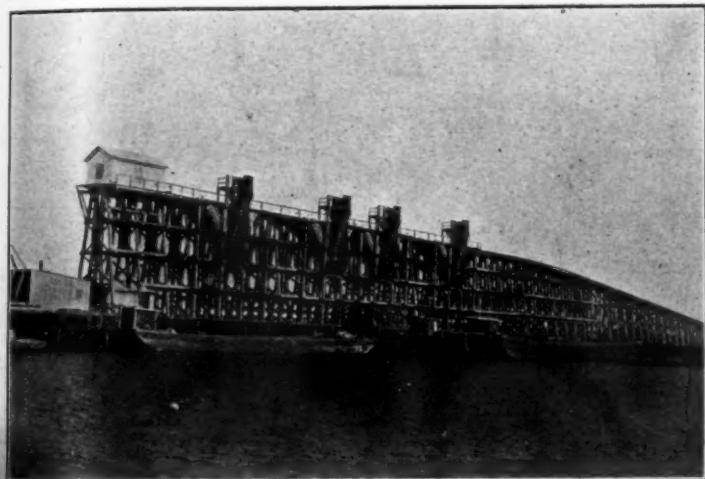
There has recently been completed at Port Bolivar, the Gulf terminus of the Santa Fe system and affiliated lines, a dock for the loading of iron ore into ocean-going vessels. The first shipment will be made some time in March, and it will be the inauguration of a notable and significant development. The shipments will be made under a contract with New York ore buyers for a minimum of 250,000 tons to be delivered in Philadelphia during 1912 and 1913. It is the expectation that five ships will be loaded during March and April; that 100,000 tons will go forward during 1912, and that 150,000 tons or more will be shipped during 1913.

This ore comes from the 25,000-acre holdings of the East Texas Brown Ore Development Co., with ownerships in Cass, Marion and Upshur counties. Col. L. P. Featherstone, Galveston and Longview, Tex., is at the head of the company, and is responsible for the development that has occurred. His company is capitalized at \$2,500,000, and all the stock is held intact by Colonel Featherstone and his associates, so that this is essentially a Texas development. It is a remarkable body of

W. G. Massenburg, division engineer of the Beaumont division, Gulf, Colorado & Santa Fe Railroad, designed the present docks and will furnish plans for the permanent docks. He spent some time in thoroughly investigating the ore docks of the Great Lakes, and has worked out his plans in the light of the information thus obtained.

The present dock is of frame trestle construction. Four three-ton ore chutes are placed on the top level at distances of 64, 32 and 64 feet apart, to conform to the spacing of the hatchways of the steamships in the service holding the ore-carrying contracts. The ore is brought to the chutes in the 40-ton ore cars in which it is shipped from the mines. These cars are conveyed up the 550-foot incline by cable, operated by a powerful donkey engine at the head of the dock track. The dock has a loading capacity of 400 tons an hour. It requires only three men to operate to capacity.

The length of the dock proper is 324 feet. Its height above tide is 58 feet. It is built 46 feet above a platform which is 12 feet above mean low tide. The approach is on a 10 per cent. grade. Double track for storage of loaded cars 1800 feet long has been provided, each 1800-foot stretch accommodating 60 cars. The average ore train will carry 40 cars.



LOADING TEXAS IRON ORE AT PORT BOLIVAR FOR PHILADELPHIA.

high-grade brown hematite ore, running as high as 60 per cent. metallic iron and averaging over 50, with low phosphorus content and merely a trace of sulphur. It is estimated that a minimum of 100,000,000 tons of this high-grade ore is contained in the holdings of the company, thus giving to the operations of the company a life of an indefinite number of years.

It is the ultimate intention of those in interest to build up a furnace and rolling-mill industry at Port Bolivar for the manufacture of iron and steel from this high-grade ore. For the immediate present, however, and possibly covering a period of three to five years, the ore will be sold to Northern furnaces, and it is likely some will be exported to Europe. To provide for this trade, the Santa Fe system and allied lines, which will transport the ore from the mines to ship side, have constructed the ore docks at Port Bolivar. Some \$60,000 has been expended in the present improvement, which is of a temporary nature. Ultimately, and as rapidly as circumstances will permit, there will be erected at Port Bolivar permanent ore docks, costing, outside the pier, approximately \$350,000. The permanent docks will not be inferior to any ore docks the ports on the Great Lakes possess, and in some respects their facilities for rapid and economic handling of ores will be even superior to most of those to be found elsewhere.

The permanent docks will have pockets with 50,000 tons capacity. With the temporary docks, should it become necessary to dump the ore, it has been arranged that it will be piled up on the ground, alongside the approach of the dock proper, to be later reloaded into cars by a locomotive crane steam shovel.

The rail used in the dock construction is 60-pound steel. There is 2242 feet of dock track. The entire track construction necessitated by the building of the dock is 1547 feet for storage track No. 1, 1220 for storage track No. 2, 1150 feet of warehouse track, 197 feet of crossover track, 450 feet of derrick track and 455 feet of loading track.

As the first ore-loading dock to be constructed on the American shore line of the Mexican Gulf, this development is of much general interest. It is epoch-marking as well, in that it is the beginning of an entirely new enterprise for Texas, with possibilities along further lines of development the extent of which no one can foretell.

ALBERT PHENIX.

Location for Factory Wanted.

C. A. Divine and associates of Bishopville, S. C., are seeking a location for the establishment of a plant for making solid, indestructible metal signs. This is said to be the only concern making signs where the letters are drilled in and in addition are galvanized.

PORTLAND CEMENT IN 1911.

Preliminary Estimate of Production Compared With That of 1910.

Complete statistics for the year 1911 were received by the United States Geological Survey during the month of January from about 70 per cent. of the Portland cement manufacturers in the United States. Based on these returns, an estimate has been made by Ernest F. Burchard of the United States Geological Survey of the entire output for the year. It is believed that this estimate is within 2 per cent. of the exact quantity of Portland cement manufactured in 1911. There was apparently a slight increase in the production of 1911 over that of 1910, amounting to about 1,300,000 barrels, approximately 77,877,236 barrels having been made in 1911, as compared with 76,540,951 barrels in 1910. This represents an increase of only 1.7 per cent. as compared with the increase of 17.7 per cent. that occurred in 1910 over the previous year. The figures for 1910 and 1911 are so close that when complete returns are received possibly a slight decrease in production may be shown. The average factory price per barrel, not including packages, was 86.7 cents in 1911, as compared with 89.1 cents in 1910, a decrease of 2.4 cents per barrel, or 2.68 per cent. In place of the five geographic districts formerly considered by the Survey, the United States has been divided into 11 subdivisions based on the grouping of plants in direct relation to the trade territory covered by each group. This grouping is also more logical when the raw materials are considered. For instance, the plants in Northeastern Indiana using marl are grouped with the Michigan plants, many of which use marl, and the plants in Southern Indiana and Northern Kentucky, all of which are near Ohio River, and all of which use hard limestone, are grouped together. Plants near Chicago, whether in Illinois or Indiana, are logically grouped together because of their nearly equal freight rates. The Southeastern States, in which plants use mostly

Appalachian limestone, are grouped together, and Texas has been transferred to the group of Great Plains States, with which it more logically belongs. Plants between Missouri River and Mississippi River in Missouri and Iowa are grouped together, and the plants in the Rocky Mountain States are considered in a separate group.

An attempt has been made to estimate the shipments of cement by districts for 1910 and 1911, but with regard to such statistics there are fewer data and the figures are not regarded as quite so accurate as those of production. 1911 was the first year in which inquiries have been made by the Survey with regard to stocks on hand. According to returns received there were decreases in production in the following districts: Lehigh, Kentucky and Southern Indiana and in the Great Plains and Mountain States. The increases recorded were in New York, Ohio and Western Pennsylvania, Michigan and Northeastern Indiana, Illinois and Northwestern Indiana, the Southeastern States, Iowa and Missouri, and in the Pacific Coast States. Slightly better prices were realized in the Lehigh district, New York, and on the Pacific Coast, but in Michigan and Northeastern Indiana, Illinois and Northwestern Indiana, and in the Great Plains and Mountain States the average price was lower than in 1910, but in Western Pennsylvania and Ohio, Southern Indiana and Kentucky, the Southeastern States, and in Iowa and Missouri the price remained about the same.

The apparent increase in average price per barrel in the Lehigh district and New York is due to the fact that many producers' reports took no account of the increase of 8 cents per barrel allowed consumers for return of sacks in 1911. Considering this difference in allowance for bags, the average price for the Lehigh and New York districts shows an actual decrease instead of a gain.

For the sake of ready reference these statistics are arranged in tabular form:

Statistics of Portland Cement Industry, 1910 and 1911.

| States. | Active plants. | Production and shipments. | | Change per cent. | Average factory price per barrel. | |
|----------------------------------------------------------------------------------------------|----------------|---------------------------|------------|------------------|-----------------------------------|---------|
| | | 1910. | 1911. | | 1910. | 1911. |
| Eastern Pennsylvania and New Jersey (Lehigh District)..... | 24 23 | Prod. 26,315,359 | 25,924,516 | - 1.5 | \$0.729 | \$0.763 |
| | | Ship. 27,083,313 | 25,634,671 | - 5.2 | | |
| New York..... | 8 7 | Prod. 3,296,350 | 3,314,217 | + .5 | .608 | .841 |
| | | Ship. 3,069,539 | 3,068,463 | - .04 | | |
| Ohio and Western Pennsylvania.... | 9 9 | Prod. 6,072,987 | 6,675,249 | + 9.9 | .776 | .770 |
| | | Ship. 5,615,052 | 6,553,895 | + 16.7 | | |
| Michigan and Northeastern Indiana | 14 12 | Prod. 4,524,591 | 4,570,032 | + 1.0 | .870 | .849 |
| | | Ship. 4,508,738 | 4,436,462 | - 1.6 | | |
| Kentucky and Southern Indiana.... | 3 3 | Prod. 2,524,532 | 2,818,820 | + 11.7 | .799 | .802 |
| | | Ship. 3,016,413 | 2,738,630 | - 9.2 | | |
| Illinois and Northwestern Indiana.. | 6 6 | Prod. 3,376,450 | 3,617,341 | + 7.1 | .940 | .836 |
| | | Ship. 3,151,294 | 3,537,442 | + 12.4 | | |
| Southeastern States (Maryland, Virginia, West Virginia, Tennessee, Georgia and Alabama)..... | 8 10 | Prod. 3,071,009 | 4,005,001 | + 30.4 | .793 | .81 |
| | | Ship. 2,800,563 | 3,723,163 | + 32.9 | | |
| Iowa and Missouri..... | 6 7 | Prod. 5,722,971 | 6,060,261 | + 5.9 | .916 | .911 |
| | | Ship. 5,261,160 | 6,008,503 | + 14.2 | | |
| Great Plains States (Kansas, Oklahoma and Central Texas)..... | 16 16 | Prod. 7,713,253 | 6,904,466 | - 10.6 | .996 | .871 |
| | | Ship. 7,087,296 | 6,743,060 | - 4.8 | | |
| Mountain States (Colorado, Utah, Montana, Arizona and Western Texas)..... | 8 7 | Prod. 2,236,561 | 2,117,930 | - 5.3 | 1.288 | 1.156 |
| | | Ship. 2,085,393 | 1,974,476 | - 4.4 | | |
| Pacific Coast (California and Washington)..... | 9 11 | Prod. 6,385,588 | 6,889,400 | + 7.6 | 1.354 | 1.407 |
| | | Ship. 5,941,340 | 6,523,106 | + 9.8 | | |
| Totals..... | 111 111 | Prod. 76,549,951 | 77,877,236 | + 1.7 | \$0.891 | \$0.867 |
| | | Ship. 74,540,711 | 75,831,891 | + 1.9 | | |

Cost of Drainage Pumping Plants.

In the table on page 65 of our issue of February 1, accompanying an article on drainage pumping plants by Mr. H. L. Hutson of New Orleans, the column dealing with the cost of fuel per acre of water

removed should have appeared as one-tenth of the price represented by the figures. The author notified us of the misplacing of the decimal point in a letter which reached us after the publication of the article. The correct table is as follows:

Cost of Drainage Pumping Plants with High-class Equipment Throughout, Consisting of Water-Tube Boilers, Compound Condensing Engines and High-Grade Centrifugal Pumps, with Estimated Cost of Labor per Annum for Each Plant and Cost of Fuel per Acre Drained.

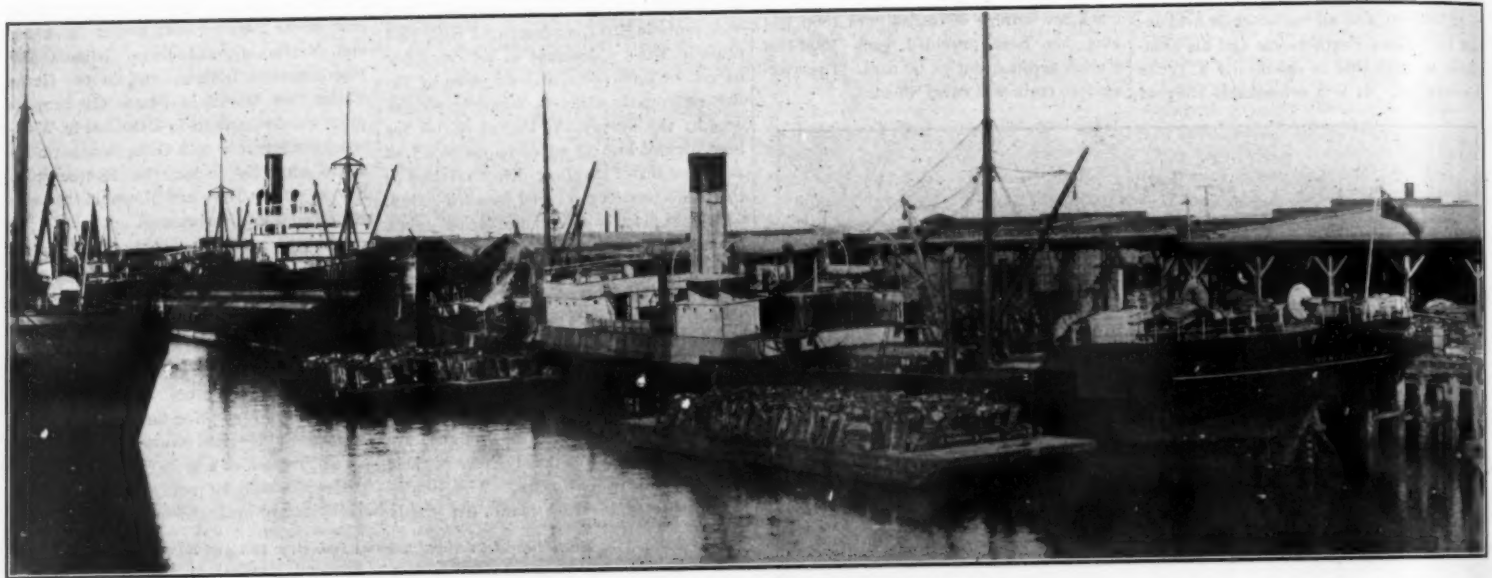
| Rated capacity of plant in gals. per min. Capacity in acre-inches of water operating. In 24 hours. | Number and size of units. | Cost of plant erected ready for use. | Estimated cost per annum for labor. | Cost of fuel per acre-foot of water removed. | Cost of fuel per acre assuming a run-off of 24" per annum. |
|----------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------|-------------------------------------|----------------------------------------------|------------------------------------------------------------|
| 2 36" Pump Units.... | 70,000 | 3,700 | \$25,000 | \$0.0785 | \$0.157 |
| 2 45" Pump Units.... | 100,000 | 5,300 | 31,000 | 0.0740 | 0.148 |
| 2 48" Pump Units.... | 120,000 | 6,300 | 41,000 | 0.0725 | 0.145 |
| 2 64" Pump Units.... | 150,000 | 7,900 | 49,000 | 0.0695 | 0.138 |
| 2 60" Pump Units.... | 200,000 | 10,000 | 60,000 | 0.0665 | 0.133 |
| 2 72" Pump Units.... | 270,000 | 14,300 | 74,000 | 0.0632 | 0.126 |

*Larger plants would be made up by increasing the number of units.

SEABOARD AIR LINE RAILWAY TERMINAL AT SAVANNAH.



BIRD'S-EYE VIEW OF DOCKS AND TERMINAL TRACKS.



LOADING COTTON ON OCEAN-GOING STEAMERS.



COMPRESSED COTTON AWAITING SHIPMENT.

To Rebuild Big Tannery.

The Ashland (Ky.) Leather Co. has accepted plans for rebuilding its tannery, previously destroyed by fire. Its new buildings will cost \$100,000, and contract for their construction has been awarded to the Moore Construction Co. of Charleston, W. Va., B. W. Seymour of Chicago being the architect and construction engineer. The

buildings will be of fireproof construction, and as follows: Two-story roller-house, 50x150 feet; two-story bleachhouse, 50x153 feet; two-story boiler-house, 32x90 feet; one-story engine-room, 32x36 feet; one-story rocker vat-house, 125x164 feet; two-story yardhouse, 72x376 feet. An unconfirmed report states that the mechanical equipment will be electrically driven by a 150-horse-power engine and a 100-

kilowatt generator, and have a daily capacity of 400 sole-leather hides.

The Chamber of Commerce of Elizabeth City, N. C., E. F. Lamb, president, is circulating an illustrated pamphlet giving substantial reasons for an invitation to the manufacturer and homeseeker to the city on the Pasquotank.

Black and Colored Leather.

Bensussan, Sides & Co., Salonica, Turkey, write to the MANUFACTURERS RECORD:

"Send us a list of as many factories as you can find which turn out black and colored leathers for shoes and slippers."

Texas is now producing peaches to the annual value of \$7,000,000.

Electricity as a Factor in Progressive Agriculture.

By E. P. EDWARDS.

The principal object of this paper is to point out the possible, as well as the probable, advantages that will accrue to the farmer and the country at large through the comprehensive use of electricity by the agricultural community.

Before attacking this specific problem we should obtain a proper perspective, and with this object in view a brief historical outline of the electrical industry will be given. From this record of past achievements helpful comparisons can be drawn and logical prophecies made.

The advantages that have been derived from the invention and use of the telegraph and telephone are too obvious to warrant detailed discussion, and we will confine ourselves, therefore, if you please, to a consideration of the more recent inventions which have made possible the introduction of electric light and power.

The invention of the incandescent electric lamp by Edison in 1879 marks an epoch in the advance of civilization in the electrical art of unequalled importance in the annals of the world's progress.

The introduction of electric light into the home and factory has paved the way for the other manifold uses to which electricity has been put.

Electric light has been, and always will be, the opening wedge for electrical progress.

The first central station erected for the purpose of furnishing electric light was installed in 1882 at Appleton, Wis., with a capacity of 250 lamps. Today we find central stations in this country to the number of 8000, furnishing current for lighting alone equivalent to more than 100,000,000 16-candle-power lamps. An average of more than one lamp per capita of our population.

In addition to these central stations or public service distributing centers, there are over 100,000 isolated plants in this country generating electric energy for both light and power purposes.

Following the practical adaptation of the electric light came the development of power applications, the conversion of horse-drawn into electrically-operated cars securing to use the advantages of greater speed, carrying capacity, comfort and cleanliness, coupled with a more economic operating cost. Electrified traction has brought together and developed small communities that would have remained isolated and stagnant without such service.

Imagine, if you can, the chaos in traffic and business that would ensue if New York, Chicago, Boston and Philadelphia and our other large cities were deprived of their electric, subway, surface and elevated roads.

The first electric street railway was put into operation with one-half mile of track in 1890 at Menlo Park, N. J., using a five-horse-power generator as a motor for operating the car. Today we have over 1300 companies operating electric street railways with over 40,000 miles of track and nearly 100,000 cars.

Already we have made marked progress in the electrification of our great steam railway terminals and tunnels. A few years more and we shall see complete electrification in this direction.

The introduction of the electric drive into factory, shop and mill has resulted in a marked reduction in the operating costs

of manufacturers, the increase of output in a given time and a great economy in space. It has insured a degree of flexibility impossible of attainment where an isolated engine with shaft, pulley and belt transmission is used.

As an instance of such utilization we may cite a single manufacturing plant employing 13,000 workmen. This plant has a total of 5000 tools equipped with individual electric motor drive.

Consider the advantages that have accrued to the mining industry through the use of electric light and power, with its consequent reduction of fire risk and mortality, reductions which alone warrant its use even if economy in operation did not also result.

Going hand in hand with this development and making phenomenal progress, we find the modern aids to comfort, health and happiness as typified by the 2000 or more electrical devices that have been brought out, exploited and sold as aids to a higher and better standard of living, and as a means for relieving drudgery. The electric fan, electric iron, electrically-operated washing machine, sewing machine and churn have proved of incalculable benefit in the home. Electric cooking and heating devices have simplified the housewife's problem.

This country annually produces something like 200,000 electric fans and 250,000 electric flatirons.

The combined annual output of all of these devices represents an investment of millions.

The purification of water, milk and air is being accomplished through the use of ozone and the ultra violet ray produced by electricity. Our highest medical authorities throughout the country are constantly experimenting in an endeavor to perfect practical apparatus and methods whereby these agents may be used to better sanitary conditions.

The medical authorities of the United States Army, working on the well-known fact that by far the larger percentage of the fatalities in the army result from sickness rather than from actual warfare, are working along lines to reverse this percentage. It has been proposed to equip the various units of our army with electrical outfits for the purification of water and milk.

Now let us consider what the above developments mean in terms of investment and energy consumed. Edison invented his dynamo in 1879. From the principles embodied in this first generator of five horse-power capacity has been evolved the modern single unit of 27,000 horse-power capacity. From the first electrical distributing station mentioned above has sprung plants having an individual capacity of over 150,000 horse-power.

The investment represented in electrical generating stations and machinery amounts to over \$2,250,000,000. No accurate figures are available showing the grand total invested in the electric industry as a whole.

The aggregate continuous capacity of electrical generators installed in central stations of this country approximate 12,500,000 horse-power, with a daily output of 90,000,000 horse-power hours.

Statistics of isolated plants would greatly magnify these figures.

The per capita consumption of electrical energy in our cities increases in inverse ratio as the population decreases. This

statement holds good down to towns of 1000 inhabitants, and this fact emphasizes the necessity for studying the possibility of electrifying the 2000 towns of between 1000 and 2500 population that are not now served.

Today more than 90 per cent. of our urban population is electrically served. The cost to the consumer of this service, based on an average of 10 cents per kilowatt hour (the equivalent of 7½ cents per horse-power hour) amounts to one-quarter of a cent per lamp hour for lighting, based on the energy consumption of a 20-candle-power Mazda lamp.

The cost of electric power when used for other purposes than illumination averages about 5 cents per horse-power hour. Both of these costs are decreasing, and will continue to decrease as the demand grows.

A one-horse-power motor costs approximately \$65, with an operating cost averaging 5 cents an hour. A good horse costs from \$150 to \$250, with an operating cost averaging 8 cents per hour. A one-eighth-horse-power motor, equivalent to one man power, costs about \$40, with an operating cost of less than one cent an hour.

Contract these initial costs and operating expenses, and the necessity for substituting electrical power for animal and manual labor wherever possible becomes immediately apparent.

Why is it, then, that today we find the use of electricity confined almost exclusively to our cities, towns and villages, for such is the case? The answer is found in the fact that we have concentrated our energies on the exploitation of electricity to the centers of population and to the exclusion of the rural districts.

The reason for this is natural and human. We have done the easiest thing first, but we have done it so completely that the necessity now arises for reaching out into new fields of endeavor.

How did we go about the electrification of our cities? A review of the progress of the art shows a consistent and strenuous campaign of education and aggressive effort on the part of the engineer, commercial man and central station operator. We have specialists in all lines who go from house to house advocating the use of electric light, explaining its merits and giving its cost. We furnish an electric flatiron to the housewife free of cost for a trial period, with the usual result that a sale is consummated.

We go to the big stores, show them where their present scheme of illumination is faulty and install scheme.

We go to the factory manager and show him where he is losing money through the employment of obsolete motive power, and we show him definitely where he can make greater saving and greater profit through the use of the electric motor.

We go to the miner, show him how he can substitute electricity in the shape of light and power to the advantage of himself and added safety to his employees.

Our central stations are adopting the policy of wiring houses for light and power at cost to the householder.

To sum up, we have put into the field specialists qualified to push each individual application of electricity, and these specialists are capable of specifically showing what can be accomplished in economy, convenience and safety.

I venture to say that there are none of us who would go into a large factory and endeavor to sell the owners electric drive unless we were prepared to show him actual facts and figures, which would prove that it is to his advantage to make the substitution.

On the other hand, I have as yet been unable to find any unbiased authority or

authorities that can go to the farmer with the same conclusive arguments.

These arguments are lacking simply because no one has taken the trouble to ferret out the facts upon which they can be based, and they will have to be based on facts if the farmer is to be convinced. The facts exist, and all they need is exploitation. A review of what has been accomplished where electricity has been properly exploited furnishes conclusive proof of the correctness of this contention.

With a view to securing at least some of these facts the company which I represent has employed two men, raised on the farm, and with a combined scientific electrical and agricultural training, whose work is to investigate and report on specific problems encountered on the farm. They recently conducted a test in Ohio to determine the cost of grinding corn by electric power on the farm, as against the cost of having it custom ground. The result follows:

| Cost of Grinding 4000 Bushels of Ear Corn by Electric Power on Owner's Farm. | |
|------------------------------------------------------------------------------|----------|
| Cost of motor..... | \$350 00 |
| Cost of grinder..... | 100 00 |
| Belt and installation..... | 40 00 |
| | \$490 00 |

| Motor and Belt Used 150 Hours per Year. | |
|-----------------------------------------------------------------------------|----------|
| Depreciation of motor and belt at 10% (two-thirds charged to grinding)..... | \$350 00 |
| Interest on \$500 at 6% (two-thirds charged to grinding)..... | 12 00 |
| Depreciation on grinder at 10%..... | 10 00 |
| Interest on \$100 at 6%..... | 6 00 |

| | |
|---------------------------------------------------------------------------------|----------|
| Total interest and depreciation..... | \$48 00 |
| 0.411 kilowatt hours of electricity per bushel at \$0.05 per kilowatt hour..... | \$0 0205 |
| Interest and depreciation..... | 012 |
| Labor, two men for 150 hours at \$0.15 per hour..... | 0075 |
| Total cost per bushel..... | \$0 04 |

| Cost of Grinding 4000 Bushels of Ear Corn if Hauled to Nearest Mill, Two Miles Distant. | |
|-----------------------------------------------------------------------------------------|------------------|
| 43 bushels corn per load. | |
| 34 loads, 300 pounds per load, 140 tons. | |
| | Cost per bushel. |

| | |
|-------------------------------------------------------------------|---------|
| Cost of hauling three loads per day, men and team \$3.50, or..... | \$0 027 |
| Cost of grinding at \$0.05 per bushel..... | 05 |
| Total cost per bushel..... | \$0 077 |

| | |
|---------------------------------------------------|----------|
| Cost of grinding 4000 bushels..... | \$305 00 |
| Cost of grinding 4000 bushels by electricity..... | 160 20 |
| Saving per year by using electric power..... | \$144 80 |

In this tabulation the current cost is figured at 5 cents per kilowatt hour (a fair average). The actual cost, however, was 3 cents, netting a saving of \$180 on this particular operation. In certain sections of the country much lower rates prevail, and this particular item of cost must be modified to suit local charges in every instance.

The same motor was used for threshing and fodder shredding, with some saving in cost for each operation. A greater saving would be shown if a larger volume of grain and fodder had been handled. As it was, the depreciation on the farm machinery proper ate up most of the saving in operating cost. The obvious remedy will be found in co-operative threshing, grinding and cutting for the small farmer.

The trend of the times indicates the necessity for producing in volume and selling at a small profit. To make such a policy profitable it is necessary for our manufacturers to carefully scrutinize every item of cost entering into the production of their output. Operating costs, no matter what the commodity, are figured down to the mill.

Contrast this known condition with conditions on the farm. So far as it has been possible to ascertain, there is no organized or unorganized effort being made on the part of the farmer or on the part of the farmer's educators to determine the best and cheapest kind of power for him to use. It is only within the last year that our agricultural colleges have taken up this problem, and it has been apparently

*A paper read before the New York Electrical Society January 25, 1912.

overlooked by the United States Department of Agriculture, our greatest educator.

The use of power on the farm is growing steadily, and the value of farm machinery amounts to approximately \$1,250,000,000. Does it not seem natural, with all of this machinery in use, that some concentrated and intelligent effort should be made to determine what part of it is practical, what part of it should be weeded out and what part of it can be improved?

The sharp dividing line separating our urban and rural population presents an unnatural contrast. On the one side we find cheap mechanical power and every modern convenience that makes life more worth living. On the other side we find an overwhelming proportion of costly animal and manual labor, much of which could be replaced by mechanical energy, together with the worst forms of drudgery which tend to drive the farmer to the city and makes the life of his wife a veritable slavery. This drudgery is one of the principal causes leading to the abandonment of farms. With the practical introduction of electricity on the farm an accomplished fact it will not be necessary to raise the cry of "back to the land." The movement will be voluntary, and the farmer will secure for himself the conveniences of his city brother at a far less cost than "moving to town" necessitates.

This unnatural barrier can be broken down by following the same plan in the country that has been followed in the city with such beneficial results.

Of the total 30,000,000 people engaged in gainful pursuits in this country, 30 per cent. are engaged in agriculture and kindred occupations at an annual cost of over 600,000,000 for hired labor alone. Still there is a continual complaint because of the shortage of agricultural labor and its growing cost.

Of the 30,000,000 horses and mules in the United States, 90 per cent. are being utilized in agriculture. With the lower initial cost of investment and the lower cost of operation obtained through the use of electric power, these figures should be materially altered and the proportion of animal and manual power on the farm reduced at least to a par with the mechanical power.

Education is imperative for the farmer, central station operator and manufacturer in order that they may meet on mutual grounds of understanding and co-operation. Where should we look for this education? Its natural source should be the Agricultural Department of the Government and our seventy-odd agricultural colleges. We cannot hope for success in our efforts to meet the needs of agriculture until we are in possession of data similar to that which we have secured and are using in building up the electrical industry in our cities, and this data should be impartial and unbiased.

I contend it should be secured by and through the organizations of our National Government and our agricultural colleges. This is being successfully accomplished by other governments, why should not our own take the matter up and push it to a satisfactory conclusion?

The National Electric Light Association, with 10,000 members, and the National Gas and Gasoline Engine Trades Association, recently passed resolutions urging the National Government to take up this work and reach a relative determination of the best form of power for each individual application on the farm.

Pending such an investigation and determination, the farmer is left to his own devices and is at the mercy of the experimenter and vendor when it comes to the purchase of power machinery. He can only reach conclusions by the "cut and try"

method, which is always expensive and often disastrous.

In the last year and a half private and corporate effort has done much to remedy existing conditions. Many of our central station organizations have extended their lines into rural districts, making a house-to-house canvass. Much of the service rendered is now supplied at a loss to the operating company, simply because the user has not been educated to the point where his consumption of energy will pay the interest on the investment in pole lines, transformers and other line material. This work will have to be carried on at a loss until the education of the consumer is completed.

Right here let me emphasize the fact that lack of education does not by any means signify lack of intelligence. There is no more intelligent or resourceful class than the farmer. I would rather place an intricate or delicate piece of machinery in the hands of the farmer than in the hands of almost any other operator. He is the man that can keep it running, make necessary repairs and get the most work out of it at the least expense.

In the early stages of electrical development in our cities we confronted the same problems. We have now solved them, and we will solve the problems on the farm without assistance if we must; with assistance, if we can get it.

One of the largest central stations is now planning to make a complete exhibit of electrical appliances and electrically-operated machines suitable for farm use. This exhibit will be in a tent 100 feet long by 60 feet wide. It will be moved from place to place and complete demonstrations given of the economies and conveniences that can be effected through the use of electricity. Electrically-operated dairy apparatus, hay hoists, hay presses, corn shellers, fanning mills, churns, butter-makers, refrigerating plants, etc., will be shown.

Savings in operating costs, through the use of mechanical power and machinery, and the increase in production consequent, will swell the profits of the agriculturist and reduce the price of his products to the consumer.

Irrigation is destined to become one of the most important, if not the most important, factor in the growth of this country. Water, where and when you want it, will act as a governor regulating the stability of the national machine. Elections, the value of securities, and, in fact, nearly everything of important hinges on the condition of crops. This, in turn, hinges naturally on weather conditions and the actual supply of water.

Uniformity in the production of crops is, therefore, basically necessary, and irrigation will help to bring this about. The development of irrigation in this country in the last few years has made great strides. It has increased land values enormously. The Government now has under consideration some 34 big reclamation projects, which, when developed, will make available thousands of horse-power in energy.

The larger proportion of this power will be utilized for purposes of irrigation. Some market, however, will have to be found for the surplus. With the education indicated an accomplished fact, there will be no trouble in disposing of this surplus.

This same condition exists in the case of numerous hydro-electric development companies and mine operators who are seeking outlets for their surplus power. Some of the latter have actually purchased and are now developing farm lands with the definite purpose in view of providing consumers for their excess energy.

The small isolated lighting plant as a pioneer is doing work of tremendous value, but in order to secure maximum economic results lighting should be combined with power application. Instead of purchasing a set of one-half or one kilowatt capacity for use in lighting alone, the farmer should purchase a set large enough to operate his dairy machinery, water pumps, churns, washing machines, hay hoists, ensilage cutters and other power-operated machines which are coming into widespread use on the farm.

The increased investment involved would be more than offset by the increased saving in operating cost.

It is a mistake to attack this problem as if it were something entirely special and differing from problems which we have already solved. The problem is the same, but somewhat more difficult of solution.

Why should the 30 or 60-volt generator, with its narrow limitations, be advocated to the exclusion of standard equipment which has been proved by time and experience to be best adapted to the needs of our urban population?

At the beginning of the present crusade there were some arguments in favor of the low-voltage plant, consisting, as it did, of a cheap gasoline engine, belt driving a dynamo that stored the energy generated in a battery of a few cells.

The first cost was small. The regulation of the engine was bad, but immaterial, as practically all of the load was carried on the storage battery, which furnished a steady source of illumination.

Also, the low-voltage tungsten lamp as at first developed was much more hardy than the higher voltage lamp and less liable to break. Also it was easier to sell the unsophisticated farmer such an outfit because of its very cheapness.

Education and development will check this tendency if it is wrong. Instead of the low-voltage set we will in all probability see generators of standard voltage and good regulation, capable of supplying current direct to the high-voltage lamp and power machinery, with a small capacity battery as an auxiliary to furnish emergency lighting. The adoption of the higher voltage makes it possible for the manufacturer to furnish standard product in the shape of motors, lamps, cooking and heating utensils. The advocate of the low-voltage equipment points to the advisability of using small motors, fans, cooking and heating appliances with his outfit, but where is the consumer to get them?

The higher and standard voltage permits and makes possible a wider range of distribution which is not feasible with the lower voltage.

Also, when the central station reaches out its lines and is in a position to supply current to the farmer, the latter can abandon his isolated plant and switch over to the central station service with a minimum expenditure, which will be more than offset by the saving in cost of operation.

The isolated plant is now a necessity to the majority of farmers, because they are not within the zone of central station distribution. The isolated plant is a valuable educator and pioneer, but it should be designed along proper and logical lines with due consideration given to past practice and experience.

There is also a tendency on the part of the farmer to purchase a portable engine, which he moves from point to point on his farm as occasion demands. When he notes the saving effected in time, economy and labor a second engine is installed at that point where the first motor had been used the greatest number of times. This practice continues until a number of such engines have been accumulated.

Does it now seem logical that his condition would be very much bettered by the

installation of a single generating unit having a capacity equivalent to the power required by his largest piece of machinery, and from this central source distribute energy through motors of suitable size? The initial investment would in all probability be less for the electrical equipment and the saving in operating cost, trouble and inconvenience would be material.

There are many more such problems which need solution, and until they are solved we cannot expect to meet with the same success in the country we have met with in the city.

The distribution problem is the most formidable with which we are confronted. Pole lines cost from \$300 to \$900 per mile, depending upon their nature and location. Obviously, the expenditure on such pole lines is not justified if the energy carried is used for scattered lighting only. It must be used for power as well. It can be so used to great advantage in competition with other forms of power.

Legislation is now in contemplation in this State which will provide for the expenditure of \$25,000 on the experimental lighting of one of our public highways. The plan contemplates the erection of concrete poles 40 to 50 feet in height, upon which will be mounted suitable lamps giving uniform road illumination.

Part of the scheme provides for renting space on these poles to the central station electric companies and telephone and telegraph companies.

If this experiment is carried out and proves successful—and all indications point to its success—we may eventually expect to see all of our public highways illuminated and our small towns and the farmer provided with electric service, the telegraph and telephone.

National, State and college experimental farms, exhibition trains and exhibits at agricultural fairs are doing much toward the elevation of the agricultural art.

Much additional good can be accomplished through these agencies at a small increase in expense if they will devote a reasonable amount of time to the inculcation of business methods. Farming will not pay unless it is conducted as a business in a businesslike way. No business can succeed as it should succeed if no consideration is given to the economic use of energy, and there is more energy expended on the farm and probably more wasted than in any other branch of industry.

In conclusion, it seems necessary to state in all frankness that the sole purpose of a paper such as this is to stimulate thought, interest and study along lines that will ultimately put us into a position to solve the problems presented.

This kind of a paper will not go far toward securing direct results. To get direct results we need facts shorn of theory, technicalities and language.

I have intentionally omitted many statistics which throw light on the subject under discussion, because they are tiresome to the auditor, but these same statistics will be found most valuable and absorbing to those of us who are sufficiently interested to study them.

I have also omitted reference to the possibilities of stimulating plant growth and destroying plant pests through the medium of electricity, because these possibilities are still the object of speculation, very active, promising and widespread speculation.

We have enough work before us of a rudimentary nature to keep us busy for some years, and we should start in at the bottom and work our way up in exactly the same manner and by the same methods that have been so successfully followed in the past.

Aransas Pass' Strategic Position.

[Special Cor. Manufacturers Record.]

Aransas Pass, Tex., February 2.

Among the Gulf cities in Texas whose industrial and commercial outlook seems promising, and whose populations are now steadily increasing, is Aransas Pass, with improved port facilities. Aransas Pass is about 200 miles southwest of Galveston and about 150 miles from the Rio Grande. The harbor facilities were favorably reported on by United States engineers who visited the harbor in December. The city is on the nearest mainland to the harbor, and one of the best locations on the Texas coast for a great city. There are three tiers of islands between this location and the Gulf which give it protection from all Gulf storms and ocean waves. The land fronts on Red Fish Bay and rises gradually from the water's edge to a height of at least 25 feet, giving sufficient fall to insure perfect drainage. The town is very prettily laid out with broad streets and avenues. There are many live oaks and sweet bay trees on the town site, which are ever green and make beautiful shade trees when properly cared for. An abundance of good fresh water can be obtained at a depth of from 15 to 20 feet by driving wells. In April, 1909, the population of Aransas Pass was about 100. At present it is about 2700, and steadily growing.

Among the many business enterprises may be mentioned the Aransas Pass ice and cold-storage plant, which is modernly equipped in every respect and has a daily capacity of 50 tons and runs to its full capacity day and night. The Aransas Pass foundry and machine shop and the mechanical planing mill, manufacturing sashes and doors. Cement sidewalks 14 feet wide have been recently completed along Commerce street, the main business thoroughfare. A company is now being organized for the purpose of building a first-class modern hotel. Aransas Pass has a lively Commercial Club composed of about 150 of its enterprising citizens. This organization is doing a great work for the city.

CHARLES E. TRIMBLE.

Alabama Interstate Power Co.

Referring to his company's plans, Chas. H. Baker of New York, president of the Alabama Interstate Power Co., wires the MANUFACTURERS RECORD confirming a statement by him in part as follows:

"We have interested London bankers in the enterprise, so that ample funds are at our command for development of the Tallapoosa and other powers and for collateral enterprises to furnish a large market to the power company. Large financial interests are held by J. S. Pinckart, H. C. Jones and Massey Wilson of Montgomery, and by wealthy and influential citizens of Nashville, Tenn.; Sheffield, Ala.; New York and other places. We anticipate that building the high dam at Cherokee Bluffs, above Tallassee, will begin as soon as river conditions permit, probably within 60 days. The development is an enlargement upon the project originally devised by H. C. Jones. The concrete dam at Cherokee Bluffs will raise the river level 130 feet at that point, causing the impounded water to form a storage lake of over 30 square miles. The reservoir will permit the storage and use of all storm waters, so that every ounce of water that falls upon the Tallapoosa watershed may be conserved and passed through the water-wheels below the dam. When the plant is in operation, therefore, neither low water nor flood water conditions in the river below the dam will be known, and the consequent effect will be to make the Alabama River navigable to the Gulf the year round. The cost of this

development will be about \$3,000,000, and a large part of it will necessarily be spent in Montgomery and the reservoir towns. The development will afford 30,000 horsepower continuously night and day throughout the year during low water and high water and under all conditions, this unusual efficiency being due to the reservoir as a regulating feature."

Developing Georgia Granite.

[Special Cor. Manufacturers Record.]

Atlanta, Ga., January 25.

In 1900 the Broad River Granite Co. was formed to develop the marble deposits in Elbert county, Georgia. The company was capitalized at \$100,000, with Wm. Heard Hillyer as president; W. L. Wiggs, secretary and treasurer, and F. G. Marchman as sales and quarry manager, and had at that time one plat of 39 acres and in another location 261 acres. The first mentioned constituted the present location of the "Oglesby" quarry, while the latter was the Ethridge quarry. Since the operations begun two railway stations, both on the main line of the Seaboard Air Line Railway leading into Atlanta, about 100 miles away, have sprung up and are known as the "Oglesby" and Ethridge stations, respectively.

Some idea of what has been done toward development can be had in the fact that the Broad River company has spent since its organization two years ago \$151,000 in development and placing the equipment. The equipment consists for both quarries of two air compressors with a total capacity of 1000 feet of cubic air; six derricks, one of which is the "back haul" and is one of the few used in this section of the country; 24 air and steam drills; 7 channel bars; 7 hoisting engines; 4 grout cars, and 2 100-horse-power boilers to make the power. About 50 quarrymen are employed to work the granite at all times.

The Broad River Granite Co. is the sole producer of the famous "Oglesby" dark and blue granite. It is cut in dimension sizes for the monumental trade. An idea of the quality of the "Oglesby" granite can be had from the Government report of it, which reads as follows:

"The rock when exposed by quarrying is perfect, massive and uniform in color, grain and texture, without the slightest blemish or imperfection of any character—a most superior monumental stone. It takes high polish, works well under the hammer and gives a striking contrast between the hammered and polished surface, which is a requisite for high-grade monumental stock."

From the reports there seems to be an unlimited amount of this precious stone. It is stated that the "Oglesby" and the Ethridge quarries are the only ones in the South producing this kind of granite.

The Broad River Granite Co. has just moved into larger and more comfortable quarters in the Hillyer Trust Co.'s building.

ROY G. BOOKER.

Memphis Warehouse Co. Plans.

Referring to plans for adding to its facilities, the Memphis (Tenn.) Warehouse Co. wires the MANUFACTURERS RECORD as follows:

"The company has made application for change of name and charter and will shortly be known as the Memphis Terminal Co.; compiling plans for increasing present capacity 50 per cent.; will then cover with warehouse and terminals 102 acres of area."

On January 27 the stockholders met and considered reorganization so as to provide for issuing stock to the amount of \$2,500,000 and a first-mortgage bond issue for \$2,500,000, the funds to be used in

paying present first and second mortgage bonds and furnishing \$400,000 to \$500,000 for improving and enlarging plant.

Plans of Oriskany Corporation.

Referring to his company's plans, R. L. Parrish of Covington, Va., president of the Oriskany Ore and Iron Corporation (general office at Buena Vista), writes to the MANUFACTURERS RECORD as follows:

"This company was organized in 1908 for leasing the Alleghany Ore & Iron Co.'s properties. On the recent expiration of the Alleghany leases this company's business made it necessary to increase its capital stock from \$100,000 to \$500,000. It in the meantime having acquired all the stock, \$250,000, of Barr Ore and Iron Corporation, with properties and operations at Pittsville, Va., on 31st ultimo, by authority of State Corporation Commission of Virginia, the Oriskany Ore and Iron Corporation merged the Barr Ore and Iron Corporation; the charter and by-laws of the Oriskany corporation remain as before with one exception, to wit, the capital stock of the Oriskany corporation was increased to \$500,000. The Oriskany corporation owns valuable real estate at Richmond, Va., and at Lynchburg, Va. On the latter real estate it has contracted for the erection of a modern up-to-date 150-ton blast furnace. It owns about 3000 acres in the vicinity of Pittsville, Pittsylvania county, Virginia, on which there are extensive deposits of brown hematite. It will mix this hematite with the magnetite ores lying contiguous thereto, and it also has contracts covering for a long term of years pyrites cinder from Spanish ore; this will be nodulized at Lynchburg and used in the mixture. The stock of the company is fully paid. The company owned on the first of February about 8500 tons of special pig-iron on yard at Buena Vista."

Reclamation Project in Missouri.

Referring to the Johnson and Henry counties reclamation project in Missouri, Brooks and Jacoby, engineers, of Kansas City, write to the MANUFACTURERS RECORD as follows:

"The total cost of the work in Johnson county is \$46,000, and in Henry county \$48,000. R. H. & G. A. McWilliams, dredging contractors, Steger Building, Chicago, Ill., were the successful bidders for the construction of the main ditches and 58,000 yards of the laterals. Johnston & Young of Blairstown, Mo., were the successful bidders for the remainder of the lateral work. The main ditches and 58,000 yards of the laterals will be constructed with dredgeboats, and the remainder of the laterals with teams and scrapers. Nature of work, reclaiming overflowed land lying adjacent to channel of creek, which is very tortuous and partially filled with trees and debris. Present channel is 39 miles long, and the main ditches will shorten the distance to 13 miles. The lateral ditches are designed to catch the hill and surface water and divert same into the improvements without injury to crops."

One Year at Texarkana.

Board of Trade,

Texarkana, Tex.-Ark., January 27.

Editor Manufacturers Record:

A review of 1911 in Texarkana shows the location of 32 new firms, 8 factories and more industries and enterprises under actual construction, more actual streets and sewerage built, more mileage in street-car tracks, natural gas mains and water pipes laid than in any other year of its existence.

The greatest features of the year were the beginning of building the 82 miles of

Red River levee, redeeming 110,000 acres of partially overflowed land; the start of building the Oak-street viaduct, that spans 40 railroad tracks; the Texarkana Water Corporation's improvements, laying six miles of new pipe; the street-car company extending County avenue and factory addition lines and double-tracking Broad street.

V. E. BURON, Secretary.

To Irrigate 100,000 Acres.

Referring to irrigation plans, Frank S. Miller, secretary of the Union Irrigation District, Raymondville, Tex., writes to the MANUFACTURERS RECORD as follows:

"Union Irrigation District, organized August 16, 1911, under the State Irrigation Act, has issued \$100,000 in bonds to complete preliminary surveys for a gravity canal 96 miles in length, involving an expenditure of about \$2,000,000. About 100,000 acres of rich farming land will be irrigated. District engineer is V. L. Conrad. Notice of date of opening bids to appear later. This is the first irrigation district to be formed in Texas."

To Enlarge Glass Plant.

The Fostoria Glass Co. of Moundsville, W. Va., which recently increased its capital stock from \$500,000 to \$1,000,000, has begun the construction of additional buildings and will add a 14-pot furnace, about \$150,000 reported as to be expended. Its new buildings will be two stories high, 80x220 feet, and four stories high, 100x100 feet, costing \$65,000, according to plans by C. D. McCarty of Wheeling. With this enlargement completed the company will have two furnaces of 16 pots each, two furnaces of 14 pots each and two tanks, increasing the number of its employees to about 1000. About 700 are now employed.

The Cotton Movement.

According to the report of Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, the amount of cotton brought into sight during the first five months of the present season was 11,362,489 bales, an increase over the same period last year of 1,760,086 bales. The exports were 6,721,691 bales, an increase of 1,307,318 bales. The takings were, by Northern spinners, 1,366,552 bales, a decrease of 161,029 bales; by Southern spinners, 1,385,982 bales, an increase of 137,199 bales.

Want an Ice Plant.

Board of Trade,

Stillwell, Okla., January 23.

Editor Manufacturers Record:

If I am not asking too much, you may announce as a news item that Stillwell wants an ice plant installed by April 1, 1912. The citizens will offer a site free as an inducement to any party interested. If they desire further information they may correspond with the Board of Trade with reference to same.

T. E. MATTHEWS, Secretary.

Oklahoma has more than 5,000,000 young apples trees that are to come into bearing in 1912 and 1913, and it is estimated that within the next 10 years the State will be producing annually an apple crop valued at \$20,000,000.

The February issue of "Resources of Tennessee," the exceedingly practical medium of publicity of State Geological Survey, is devoted principally to the Ocoee River hydro-electric development and the explorations for gas and oil at Memphis.

It is estimated that Birmingham spent last year \$3,000,000 upon articles of food and feed which may be raised within its immediate vicinity.

GOOD ROADS

WEEK'S HIGHWAY RECORD.

Progress in Southern Road and Street Improvement.

[Full details of highway undertakings are given in the Construction Department.]

Bonds to Be Voted.

Celina, Tex.—Third road district of Collin county will vote February 10 on \$120,000 bond issue for road construction.

Charlotte, Tenn.—Dickson county will vote February 17 on bond issue for road construction.

Cleburne, Tex.—Precinct No. 1 of Johnson county will vote February 23 on \$300,000 bond issue for road improvements.

Groesbeck, Tex.—Limestone county will vote February 17 on \$20,000 bond issue for road improvements.

Hot Springs, N. C.—Hot Springs township will vote on \$40,000 bond issue to build road.

Jasper, Ala.—Walker county will vote March 12 on \$300,000 bond issue for road construction.

La Grange, N. C.—Town will vote March 4 on \$30,000 bond issue for street improvements.

Lawrenceburg, Tenn.—Lawrence county will vote March 16 on \$200,000 bond issue for road construction.

Livingston, Tenn.—Overton county will vote February 28 on \$150,000 bond issue for road improvements.

Vicksburg, Miss.—City will vote February 14 on \$100,000 bond issue for street paving.

Contracts Awarded.

Baxley, Ga.—City awarded contract for one mile concrete sidewalk.

Birmingham, Ala.—Jefferson county awarded contract for macadamizing one and one-quarter miles of road.

Houston Heights, Tex.—City awarded contract at \$114,845.50 to pave Boulevard with brick.

Houston, Tex.—Harris county awarded contract at \$22,349.05 for street paving.

Jacksonville, Fla.—Duval county awarded contract for paving Mayport road.

Johnson City, Tenn.—City awarded contract at \$12,036 to pave West Main street, district No. 9.

Kansas City, Mo.—J. C. Nichols awarded contract for about two and one-half miles of granitoid walk and concrete gutter in Country Club Heights.

Contracts to Be Awarded.

Bonham, Tex.—City will construct 55 blocks of concrete sidewalks.

Dallas, Tex.—City receives bids until February 9 for paving Walton street.

Durham, N. C.—City received bids until February 5 for grading Oakwood avenue and Markham street.

Fort Smith, Ark.—City has \$80,000 available for constructing 33,000 yards of paving, etc.

Helena, Ark.—Commissioners Paving District No. 6 receive bids until February 12 for street paving.

Helena, Ala.—Shelby county ordered construction of road from Helena to Acton.

Orangeburg, S. C.—City receives bids until February 15 for 5800 square yards vitrified brick paving.

The Central Highway.

The MANUFACTURERS RECORD is advised by H. B. Varner of Lexington, N. C., chairman of the Central Highway, that progress is continuing with the construction and other plans for this road. It is expected that the road will be ready for automobiles by July. This highway will extend from Beaufort harbor, 400 miles, across North Carolina to the Tennessee

State line. Various counties and townships have issued bonds for their portions of the road, and some portions are being constructed by private organizations and individuals. Further information furnished by Mr. Varner includes the following statement:

"It is the purpose of the promoters of this road to make it an object-lesson to the counties through which it runs, and the work that has been done is just the beginning of a great highway across North Carolina to connect at the Tennessee line with a road running to the Mississippi River. Other enthusiasts have caught the enthusiasm and are planning to continue this road on to Arkansas, to the capital of the great State of Oklahoma, thence on to the Pacific Ocean, which will make it a great transcontinental highway."

Bonds for \$400,000 Voted.

Referring to the recently-voted bond issue for road improvements in Road District No. 2 of Grayson county, H. R. Wallace of Sherman, Tex., the county's auditor, writes to the MANUFACTURERS RECORD as follows:

"Election held December 9, 1911; for the bonds, 934; against the bonds, 415. An issue of \$400,000 5 per cent. 40-year, optional after 10 years. Ten bonds of \$1000 each, payable annually at Seaboard National Bank or State Treasurer's office, Austin, Tex. Number of square miles in district, 150; population, 25,000; estimated valuation, \$13,000,000. No other bonded indebtedness. Principal crops, cotton, corn, wheat and oats. Bonds will probably be ordered issued at February term of court, and will bear date of March 1, 1912."

TEXTILES

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Thayer Manufacturing Co.

The Thayer Manufacturing Co. of Charlotte has effected permanent organization with \$500,000 capital stock and the following officers: President, J. T. Lincoln of Fall River; treasurer, O. A. Robbins of Charlotte; clerk, Wm. E. Fuller, Jr., of Fall River; directors, Messrs. Lincoln, Robbins, Fuller, Albert A. Jenks and Leon W. Campbell of Pawtucket, C. B. Skipper and John H. Mayes of Charlotte. Mr. Robbins is also architect-engineer in charge, and is preparing plans and specifications, probably calling for two-story mill for carding and spinning, with weave shed adjoining. Mr. Skipper will be superintendent. As stated recently when the company was announced as organizing, an equipment of 25,000 spindles and 500 looms will be installed. The product will be plain specialties and later fine-grade specialties from combed Egyptian cotton. The site has been purchased, and is situated at the intersection of the Seaboard Air Line and Piedmont Northern (electric interurban) railways.

Lauderdale Cotton Mills.

Referring to his company, Charles W. Hancox, superintendent of the Lauderdale Cotton Mills of Meridian, Miss., writes to the MANUFACTURERS RECORD as follows: "Our capital stock is \$130,000, and the officers are: President, H. M. Threefoot; vice-president, E. Cahn, Sr.; secretary and treasurer, Marks Rothenburg; superintendent, C. W. Hancox—all of Meridian. We have 12,000 spindles, 400 looms, steam power and dyehouse. We expect to manufacture chambrays, denims, ginghams, plaids, and, in fact, all kinds of colored cotton goods. We will spend approximately \$10,000 in improvements. The

name of the mill will be Lauderdale Cotton Mills, in place of Meridian Cotton Mills, as heretofore."

Langley Company's Purchases.

The Langley Manufacturing Co. of Langley has increased its capital stock from \$800,000 to \$2,000,000 for purchasing the Aiken Manufacturing Co. of Bath and the Seminole Manufacturing Co. of Clearwater, all of South Carolina. Thos. Barrett, Jr., of Augusta, Ga., is president of each company, and the plants are equipped as follows: Aiken, 27,328 ring spindles, 702 looms, steam and water-power, etc., for manufacturing shirtings, sheetings, prints, drills and dobies; Seminole, 20,000 ring spindles, 512 looms, steam and water-power, etc., for manufacturing wide prints, sheetings and drills; Langley, 43,000 ring spindles, 1300 looms, steam and water-power, etc., for manufacturing shirtings, sheetings and drills.

Canebrake Cotton Mills.

The Canebrake Cotton Mills of Uniontown, Ala., recently mentioned as incorporated, has organized with \$80,000 capital stock and the following officers: President, S. T. Whitfield; vice-president, F. Meyer; secretary, A. L. Morgan. This company has acquired the Ella White Cotton Mills, recently purchased by Mr. Morgan and associates. It is overhauling the plant, which is equipped with 10,000 spindles and accompanying machinery for manufacturing cotton yarns, the weekly capacity to be 31,000 pounds.

Springstein Mills Installing Looms.

The Springstein Mills of Chester, S. C., will install 100 box looms for weaving dress ginghams, the production to be about 3000 yards per loom each week. These looms have been ordered from the Crompton & Knowles Loom Works of Worcester, Mass. About 15,000 spindles are operated by the Springstein company.

A \$100,000 Company Incorporated.

Messrs. J. H. Weddington, F. D. Alexander, S. B. Sargent, W. H. Belk and A. P. Payne of Charlotte have incorporated the Piedmont Commission Co. with \$100,000 capital stock to manufacture cotton yarns and cloth, etc.

To Install 5000 Spindles.

W. H. Shuford of Hickory, N. C., has purchased a mill building at Newton, N. C., and will equip it with 5000 spindles for manufacturing cotton yarns.

The Carr Knitting Mills of Suffolk, Va., has increased capital stock from \$17,000 to \$25,000, and will add new machinery.

New Orleans Public Belt.

A. F. Barclay, assistant engineer Public Belt Railroad, New Orleans, says that the yard which it is to build between Market and Henderson streets will be small and will have a capacity of about 100 cars. This is the only construction that is contemplated for the next two months.

The Public Belt Railroad is owned and operated exclusively by the city of New Orleans through a commission of which the Mayor is president, and in which the business exchanges of the city have representation. It has 29 miles of main line and switches completed and in operation, and affords independent service to and from the various lines of railroad there and also to and from vessels.

Northern Central Meeting.

The annual meeting of the Northern Central Railway will be held February 23 at noon in the general office at Baltimore, when the annual report will be presented and the election of directors held.

RAILROADS

[A complete record of all new railroad building in the South will be found in the Construction Department.]

MERIDIAN TO UNION.

A Railroad Connection of Advantage to Louisville & Nashville and Frisco.

[Special Cor. Manufacturers Record.]

Meridian, Miss., February 5.

J. T. Schley of Macartney & Schley, bankers, Mobile, Ala., has visited Meridian and announced to the Board of Trade and the Cotton Exchange that his firm has acquired the Meridian & Memphis Railway Co. and will build its proposed line from Meridian northwest to Union, Miss., about 50 miles, connecting there with the New Orleans, Mobile & Chicago Railroad, of which the Frisco and the Louisville & Nashville system recently obtained control, giving it direct connection with Meridian. It is further stated that contracts for the construction, financing and operation of the road have been signed and placed with the Mobile firm.

As a result of this announcement February 27 has been set as the date for an election in Meridian to vote on a proposed issue of \$50,000 of bonds to aid in the building of the railroad. Furthermore, a committee is busy with efforts to raise a bonus of an equal amount for the same purpose. Part of the total of \$100,000 will be used for terminals.

The Meridian & Memphis Railway Co. was organized last summer by S. A. Neville and C. F. Scofield of Meridian and others to be practically a westward continuation of the Meridian & Deepwater Railroad, of which Mr. Neville is president and which is being built eastward from Meridian to Myrtlewood, Ala., on the Tombigbee River, about 47 miles. Myrtlewood is a terminal of the Louisville & Nashville Railroad, and it is reported that it and the Frisco have acquired the Deepwater road. The Louisville and Nashville is said to be delivering steel at Myrtlewood for the construction of a bridge to make connection over the river.

It was recently reported from Meridian that the Meridian & Memphis Railway Co. had acquired control of the Cotton States Lumber Co.'s railroad, which runs north from Meehan Junction, on the Queen & Crescent Route, several miles west of Meridian, and would make it part of the line to Union. It was further stated that the J. R. Buckwalter lumber railroad out of Union had also been acquired for the same purpose. The former is about 40 miles long and latter about 13 miles, but all of this mileage could not be used for a direct line between Meridian and Union.

REBUILDING BIG BRIDGE.

Interesting Construction, with Substitution of Gauntlet Track for Single.

The Atchison, Topeka & Santa Fe Railway is rebuilding its bridge over the Missouri River at Sibley, Mo., a bill having been passed by Congress and approved by the President permitting changes in the structure. When reconstructed it will give 48 feet of clear head room above the extreme high-water mark of 1844, and more than this above the standard high-water mark adopted by the Government engineers. The elevation of the base of rail in the main spans will not be changed.

The proposed rebuilding, beginning at the west end, is as follows: Remodel west abutment; remodel Pier 1 and replace an 80-foot deck girder span; replace a 200-foot deck truss span with two 100-foot deck girder spans and a new center pier;

replace three 396-foot through truss spans, taking off from 8 to 20 feet from the tops of the four piers supporting them and rebuilding in concrete; rebuild three deck truss spans, one of 247 feet and two of 172 feet 6 inches each, remodeling piers to fit; rebuild about 2000 linear feet of steel viaduct composed of 30-foot towers and 60-foot spans, including the sub and superstructure. This covers the entire bridge.

All of the new structure is designed for Cooper's E-60 Loading. The piers under the east approach viaduct will rest on reinforced concrete piles. The entire structure will have a ballast deck with footwalk and hand railing on one side. Provision has been made in the shape of steel brackets for carrying all the telegraph, signal and telephone wires across the structure on the downstream side.

Although the bridge will be rebuilt as a single-track structure, gauntlet tracks will be laid across it, each pair of rails being spaced seven inches apart on centers. Furthermore, the track across the 2000 linear feet of viaduct now has an ascending grade of .8 per cent. westbound, and it is expected to raise the elevation of track at the east end of the viaduct to reduce this grade to .5 per cent. An interesting feature is the putting in of a genuine expansion bearing on one bent in each tower of the viaduct. This bearing is composed of four 12-inch segmental rockers.

The work of replacing the three 396-foot spans is now actively under way. A little more than half of the metal work for them is already delivered at the bridge, and it is expected to begin the erection of the west span early this month. The American Bridge Co. is furnishing the steel superstructure for the entire bridge. The Missouri Valley Bridge & Iron Co. of Leavenworth, Kans., has the contract for remodeling the four large piers, for building the falsework, taking down the old spans and erecting the three new ones. It is expected to award contract for the substructure required in the approaches, but the erection of the metal work in them will be done by the company's forces.

The cost of the rebuilding of the bridge will probably be about \$1,300,000, and it is hoped to complete it by the end of this year, although high water, ice, etc., may delay it.

The work is being done under the plans and direction of A. F. Robinson, bridge engineer of the Santa Fe system, with office at Chicago.

MOBILE TO CHICAGO.

Work Begun to Build a Railroad Extension Connecting Up for Through Line.

President B. L. Winchell of the Frisco system, who has lately become chairman of the board of the New Orleans, Mobile & Chicago Railroad Co., which the Frisco and the Louisville & Nashville jointly control, is quoted in a report from Mobile as saying that engineers are now surveying for the proposed northward extension from Middleton, Tenn., to connect with the Nashville, Chattanooga & St. Louis Railroad, that is controlled by the Louisville & Nashville, the purpose being to operate through trains between Mobile and the Ohio River at Paducah, Ky. Connection is to be made by way of a new bridge over the Ohio with the Chicago & Eastern Illinois Railroad, which is in the Frisco system. This will afford connection to Chicago and also to St. Louis and Kansas City.

Mr. Winchell is further reported as saying that it will be necessary to do a great deal of work on the New Orleans, Mobile & Chicago to place it in condition for heavy freight and fast passenger traffic,

and this will begin as soon as the frost is out of the ground. Heavy rails will be laid, the line will be thoroughly ballasted and grades and curves will be reduced where necessary to place the road in a superior physical state.

In conclusion President Winchell said that the plans contemplated would eventually make Mobile one of the greatest railroad centers on the Gulf coast and the city would undoubtedly get its full share of the commerce to follow the opening of the Panama Canal.

NATCHEZ TO MERIDIAN.

Plans for an East and West Line Which Will Operate in Two States.

The plan to build a railroad across Mississippi from Natchez to Meridian has been revived under the name of the Natchez Eastern Railroad Co., which, according to a report from Meridian, will be chartered immediately by W. M. Cornell of that city, Henry Yerger of Jackson and M. P. Finnegan of Rose Hill, Miss. Sechrest & Co. of Buffalo, N. Y., are said to be interested, and bonds are reported placed for financing the plan.

It is further said that surveys have been made and cover a total of 340 miles, much of them being along the route which was proposed for the Mississippi Western Railroad several years ago, but which was not built. The survey of the main line is from Natchez eastward to Gallman, on the Illinois Central Railroad; thence to Mendenhall, on the Gulf & Ship Island Railroad; to Louin, on the New Orleans, Mobile & Chicago, and then to Meridian. There will be a branch north from Raleigh to Carthage, crossing the Alabama & Vicksburg Railroad at Forest. Westward the main line will go to Baton Rouge, La.

KEY WEST TERMINALS.

Florida East Coast Is Building Concrete Pier and Ferry Slips.

Wm. J. Krome, constructing engineer Florida East Coast Railway, Marathon, Fla., says that the deep-water terminals planned at Key West will consist of a single pier 2000 feet long, extending from the shore line "to 24-foot contour in Man-of-War harbor." The width of the pier will be 134 feet, and it will consist of unreinforced concrete gravity retaining walls with rock filling between. A depth of 24 feet of water will be dredged for the full length of this pier and an inner basin will be provided, dredged to the same depth. A coaling station and slips for the ocean car ferries will be built along this inner basin. The work will all be done by the company's forces, and it has already begun. Ernest Cotton, division engineer at Key West, is in charge of construction.

It will be observed that Mr. Krome refers to the "slips for the ocean car ferries," thus indicating that there is no doubt about the intention of the company to convey loaded cars between Key West and Havana by means of steam ferry boats.

FRISCO WANTS WHARF.

Application for Pier at New Orleans Awakes Expectation of Ocean Connection.

A report from New Orleans says that the Frisco system has applied for 1250 feet of wharf space there, and it is rumored that the company will effect arrangements with some transatlantic steamship company for service in connection with the railroad.

New Equipment, Rails, Etc.

The Western Maryland Railway is getting bids for the following equipment: 500 50-ton gondola cars, 500 40-ton gondola cars, 1000 40-ton box cars and 750

steel hopper cars, of which 500 will be of special design; 18 vestibuled passenger cars, 6 mail and express cars, several baggage cars, some cabooses, 10 Pacific passenger locomotives and 15 consolidation freight locomotives.

F. C. Tracy, Beaver, Okla., says that the Beaver, Meade & Englewood Railway will want 800 tons of 70-pound relaying rails, 18,000 ties, supplies, etc., all about July 1 next.

The Rock Island is reported in the market for 20 combination passenger and baggage cars, 10 combination baggage and express cars and 10 postal cars.

The Kansas City, Clay County & St. Joseph Railway Co. is reported to have let contracts totaling over \$200,000 for cars and other equipment to the Wyandotte Construction Co.

The Missouri, Oklahoma & Gulf Railroad is reported to have placed contracts for 2000 tons of steel with the Wisconsin Bridge Co. of Milwaukee and the Fort Pitt Bridge Co. of Pittsburgh.

The Milledgeville (Ga.) Railway, it is reported, will purchase a motor car for passenger service.

The Elkin & Alleghany Railroad Co., Elkin, N. C., says a report, will add two steam shovels to its construction equipment, besides a wheel scraper and other grading machinery.

The Florida East Coast Railway, says a report from Jacksonville, has received from the Pullman Company, Chicago, steel equipment thus: Two compartment cars, five first-class passenger cars, four 70-foot baggage cars and three 60-foot mail cars.

It is denied that the Baltimore & Ohio is in the market for 36 passenger cars.

The Wheeling (W. Va.) Traction Co., G. O. Nagle, general manager, will, it is reported, buy 20 or 25 double-truck cars.

The Louisville (Ky.) Railway is expected to place an order for street cars. At least 10 will be bought.

The Hagerstown & Clear Spring Railway, Hagerstown, Md., is reported to have ordered four cars from the St. Louis Car Co.

The Tennessee Coal, Iron & Railroad Co. is reported in the market for 200 coal cars.

The Chesapeake & Ohio, says a report, has ordered from the Federal Storage Battery Car Co., Boston, a double-truck 25-foot passenger storage battery car for use out of Cincinnati.

The Tampa & Gulf Coast Railway wants prices on new and relaying rails, 48, 50 and 56 pounds per yard, delivered at Tampa, Fla.

The Pennsylvania, according to a market report, has ordered 13,000 steel car wheels from the Carnegie Steel Co., Pittsburgh.

L. & N. Will Operate It.

A report from Knoxville, Tenn., says that the Harriman, Knoxville & Eastern Railway, recently completed from Harri-man to Oliver Springs, Tenn., about 17 miles, will be operated by the Louisville & Nashville Railroad as part of the Knoxville division.

Telephones for Dispatching.

The Piedmont & Northern lines, Charlotte, N. C., have placed orders with the Western Electric Co. for telephone train dispatching equipment for two routes now nearing completion. The first is from Charlotte to Gastonia, 24 miles, and the other from Greenville to Greenwood, S. C. The equipment to be used is of the very latest type throughout, including the Western Electric No. 50-B selector and necessary telephone apparatus and accessories. The selectively operated semaphore is a new development, and is oper-

ated by the dispatcher by means of a selector key in the same manner that a wny station is signaled.

Railway, Hotel and Town.

W. Boyd Evans, attorney-at-law, Columbia, S. C., says that B. L. Abney and others interested in the Lakeview Investment Co., which has a tract of 1600 acres of land three miles from Columbia, have had introduced in the General Assembly of South Carolina a bill to charter an electric railway company for a line from Columbia to Camden, about 30 miles. The line will run via Lakeview (formerly Dent's Pond) and the lake, which is of about 170 acres in extent, ranges from 10 to 40 feet deep. It is described as a beautiful body of water, and the company intends to locate on its borders a tourist hotel and a high-class cottage settlement. Those interested are B. L. Abney, G. A. Guignard, Chas. McCrary, W. S. Reamer, W. M. Thompson, Lee A. Lorick, T. C. Williams, A. G. Le Motte, Francis D. Kendall and W. Bord Evans. The capital stock of the railway is to be \$250,000.

Southern's Second-Track Work.

The Southern Railway continues to push its second-track work on the line between Washington and Atlanta. Surveys are being made from Charlotte, N. C., southward, but it is not yet decided whether any of this will be built in the near future. Work is, however, in progress on second track from Cross Keys, Ga., to Duluth, Ga., about 15 miles; also from Suwanee, Ga., to New Holland, Ga., about 25 miles. No work is being done north of the latter place.

In Tennessee surveys have been made by the Southern for second track from Bull's Gap to a point near Morristown, and from Morristown to Roe Junction a new cut-off route has been surveyed, but it is not yet announced whether any of the work will be done in the near future. W. H. Wells, Washington, D. C., is chief engineer of construction.

Kentucky Southwestern Electric.

President H. C. Rhodes of the Kentucky Southwestern Electric Railway, Light & Power Co., Paducah, Ky., says that its work has proceeded sufficiently to justify the construction of its proposed lines and the preliminaries are in such shape that they can be soon submitted to financiers for their action. Major W. A. Calhoun of Buffalo, N. Y., is consulting engineer.

It appears that the company aims to build 210 miles of railways in three divisions, reaching 11 counties and serving 50 cities, towns and villages. It will reach coal mines, timber lands, farming lands and other sections devoted to truck gardening and fruit culture. About 50 per cent. of the entire area traversed is cultivated. John D. Smith is secretary of the company.

Extension of a Texas Line.

Ben B. Cain, Dallas, Tex., vice-president and general manager of the Gulf, Texas & Western Railway, says it is proposed to build 25 miles of extension from Jacksboro south to either Salesville or Oran, whence the trackage of the Weatherford, Mineral Wells & Northwestern Railway will be used to Mineral Wells and Weatherford, Tex. Location is not yet made, but the route is through country partly rolling and the rest level. Bids for construction will be received in about 90 days. Propositions have been made to Jacksboro, Mineral Wells and Weatherford, and if they are accepted construction will begin as soon as practicable. P. E. Bock, Jermyn, Tex., is chief engineer.

LUMBER

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

Southern Building in January.

Southern and Southwestern building operations for January, as indicated by reports from a number of representative cities, continued active during the month. In Richmond there was a marked increase over January of last year, permits having been issued for more than 60 commercial, industrial and other structures, including a number of important buildings. A total of 33 permits was issued in Winston-Salem for the month, representing a cost of construction of \$101,225. Permits were issued in Birmingham to the number of 184 during the month, including 67 frame residences. The total cost of construction was estimated at \$243,277. In Macon the cost of construction for which permits were issued was estimated at \$95,765, an increase of about 100 per cent. as compared with January, 1911. Permits were issued in Augusta for 26 cottages, one warehouse, four frame residences and one brick residence, representing a cost of construction of \$57,608, which is an increase of about \$40,000 as compared with January of last year. A total of 95 permits was issued in Jacksonville during the month, representing a cost of construction of \$801,075, an increase over December of \$542,295. The most important structure is the Heard 15-story office building, to cost about \$600,000. In Tampa permits were issued for buildings estimated to cost \$513,835, included in which are several important structures. Permits were issued in Louisville during the month for buildings estimated to cost \$188,000. The estimated cost of construction for which permits were issued in St. Louis during the month exceeds the figures for January of last year by more than \$2,000,000, the aggregate being \$3,418,032, as compared with \$1,355,655 for January, 1911. Permits were issued in Galveston during the month for 38 buildings, estimated to cost \$36,350. In Houston the total cost of new construction, alterations and repairs for which permits were issued was estimated at \$344,920. A total of 350 building permits was issued in the District of Columbia during January, involving an estimated expenditure of \$757,954. These include 170 brick dwellings, 22 stores, 2 stores and dwellings, clubhouse, 16 frame structures and 93 repair jobs. Permits were issued in Baltimore for new construction, alterations and repairs representing an estimated expenditure of \$601,660.

Hilton-Dodge Lumber Co.

The Hilton-Dodge Lumber Co. of Savannah, incorporated last fall, has consolidated the Hilton & Dodge Lumber, Sapelo Land & Lumber, Southern Export, Vale Royal Manufacturing, Mill Haven, Savannah Mercantile, Cypress & Pine Timber, Westmoreland Lumber and Floyds Neck Land & Timber companies. The new corporation has a capital stock of \$7,500,000. It owns 552,388 acres of timber land in Georgia and South Carolina, seven sawmill plants, etc. Its land is estimated to contain between 3,500,000,000 and 4,000,000,000 feet of merchantable timber, largely cypress and long and short leaf yellow pine. Its mills are at Savannah, Belfast, Darien, Brunswick and Satilla Bluff, in Georgia, and at Wiggins, S. C., having an annual capacity of 150,000,000 feet of lumber, over 25 per cent. of this being cypress. Officers of the company are: President, R. H. Knox; first vice-president, J. R. Paschall of Richmond, Va.; second vice-

president, James L. Foster; treasurer, Thomas Hilton; secretary, W. Kinsey. Branch offices at Boston, New York, Philadelphia and Portland.

Hewitt Lumber Mill Completed.

The D. F. Hewitt Lumber Co. of Huntington, W. Va., has completed and is now operating its big mill, expecting to saw about 35,000 feet of lumber daily. Its timber property is in Logan county, and includes between 15,000 and 17,000 acres of land, which was purchased last year, and through which a railway has been constructed.

To Cut Arkansas Timber.

The R. M. Fletcher Lumber Co. of Pine Bluff and the Hampton Stave Co. of For-dyce, Ark., have purchased for \$200,000 the pine and hardwood timber on 48,000 acres of land adjacent to Pine Bluff, Ark. These companies will install five portable mills and build two mills for sawing hardwood lumber, the Fletcher company's plant to include a planing mill and the Hampton plant a hardwood mill.

Seaboard Cooperaage Co.

Messrs. Wilmer H. Crawford, Albert C. Bacon and E. S. Trosdal of Savannah have incorporated the Seaboard Cooperaage Co., with capital stock of \$100,000, and privilege of increasing to \$250,000, for manufacturing all kinds of cooperaage.

Morton Butler Timber Co.

The Morton Butler Timber Co. has been chartered by Morton Butler of Chicago and associates to operate in Tennessee, the capital stock being \$500,000.

The Great Southern Lumber Co. of Bogalusa, La., writes to the MANUFACTURERS RECORD that it is now shipping its export lumber over the New Orleans Great Northern Railroad to Slidell, La., and thence by barge to Gulfport, Miss.

MINING

CADDO OIL FIELD.

Development of a Great Petroleum Pool Brings Wealth to Louisiana.

The development of the new Caddo oil field in Louisiana has been remarkable. The first shipments, made in December, 1906, amounted to 3358 barrels. In 1907 the district expanded considerably, and the production was 44,908 barrels. The year 1908 showed still greater growth, both in territory and production, notwithstanding the handicap caused by high water in May and June of that year. The production of oil in 1908 was 499,937 barrels. In 1909 it was 1,028,818 barrels and in 1910 a yield of 5,090,793 barrels was recorded, valued at \$2,292,349. The number of wells completed increased from 1 in 1906 to 23 in 1907, 58 in 1908, 121 in 1909 and 226 in 1910. In 1910 the oil-producing wells numbered 124, and those producing gas 48. The Geological Survey estimates the oil production for 1911 to have been at least 10,000,000 barrels.

The Caddo field is now not only a large producer of petroleum, but it is the greatest gas-producing region of the United States. Only a small portion, however, of the gas has been used. For several years the waste in this field was enormous, but one of the wells where the waste was greatest has recently been closed. The lack of a market for the gas is given as a reason why the waste was not checked sooner. It has been proposed to pipe this gas to New Orleans and St. Louis.

Arkansas Antimony Deposits.

Referring to Arkansas antimony, J. A. Boecker of Parsons, Kans., writes to the MANUFACTURERS RECORD as follows:

"With reference to the extent of the antimony ore deposits on our property, will say that there has been considerable surface prospecting done in years past, with apparently good paying results as far as they went, but there has been no real mining done in the State of Arkansas so far as known to any depth. These veins are apparently true fissures, are well mineralized, and have every indication of extending to great depths, although 110 feet is the greatest depth that same has been explored up to this time. At this level they show up well, the entire vein three and one-half feet in width is mineralized with good indications for further improvement, the veins strike northeast-southwest, and are traceable for several miles. We hope to start work sinking further on our shaft already to the 110-foot level in about 30 days."

Mr. Boecker is engineer in charge for the Southwestern Mining & Smelting Co., recently reported by the MANUFACTURERS RECORD as to develop 500 or more acres of antimony deposits near Gillham, Ark., the daily capacity to be 40 tons and the fuming and reduction plant to cost \$50,000.

Daily Output to Be 1400 Tons.

A daily output of 1400 tons of coal is proposed by the Muhlenburg Coal Co. of Browder, Ky., which will develop 11,400 acres of land. This company has organized and will operate two mines heretofore operated under lease by another company. Its officers are T. B. Caldwell, president, secretary and treasurer; E. J. Manigan, vice-president; C. D. M. Greer, manager of sales.

Ben Franklin Coal Co.

Messrs. M. J. McQuade, A. L. Iseman, C. E. Hild and others of Freeport, Pa., have incorporated the Ben Franklin Coal Co. of Moundsville, W. Va., with a capital stock of \$250,000.

To Increase Cement Plant Capacity.

The directors of the Piedmont Portland Cement Co. of Portland, Ga., have authorized an issuance of bonds for \$250,000 for the purpose of increasing the company's plant from a daily capacity of 500 to 1500 barrels of Portland cement. Details as to new buildings, new machinery, etc., have not as yet been determined, and will not be considered until later in the year, probably about May 1. J. C. Bass of Portland is president and W. H. Davis of Atlanta is secretary-treasurer.

MECHANICAL

New Westinghouse Crane Controller.

The well-known "grindstone" type of controller used extensively in connection with direct-current motors operating cranes, hoists, steel-mill machinery, etc., has recently undergone a refinement which will still further increase its value by simplifying its construction and increasing its durability. The controller consists essentially of a cast-iron frame on which is mounted a stationary disc carrying the contact pieces and cross-connections. Pivoted to the center of the disc is the switch arm, with four brush-holders. As a result of a series of experiments the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., has recently placed on the market controllers of this type in which the disc is made of concrete instead of stone. By a special treatment the concrete disc is made a thorough non-conductor and at the same time moisture resisting. The use of concrete permits the cross-connections between the segments to

be made within the body of the disc, thereby giving the disc a "reinforced" concrete construction and at the same time producing a more compact piece of apparatus. The concrete disc, with its self-contained cross-connections, also gives the controller a neat appearance. The contact pieces are attached to the disc by screws in the same way as in the older type, and are as easily renewed. A blowout coil of asbestos insulated wire is mounted on each brush-holder to disrupt the arc formed in opening circuits.

General Electric Storage Battery Locomotives.

The success of the storage battery equipment for electric vehicles has been so marked that it has been applied to electric cars, electric locomotives, etc. The storage battery locomotive is designed for service where a trolley system cannot be installed or is not desirable, and finds applications especially in short distance hauls at low speeds, such as over the industrial tracks in and about factory buildings, or where the conditions would require changing the trolley continually, as in contractors' service. These locomotives may be built to carry their loads on the platform or to haul trailing loads. One of these locomotives carrying a 20-ton load of castings is shown in the accompanying illustration.

The General Electric Co., Schenectady, N. Y., has placed this storage battery locomotive on the market. The construction is designed to be in accordance with the best practice. The frame consists of two steel "I" beam sides and two steel channel ends, carefully fitted at the joints and held rigidly together with steel angles and heavy bolts. The end frames are faced with wood bumpers, to which suitable coupling devices are attached, these latter being designed to suit the customer's cars. The cast-steel pedestal jaws which carry the journal boxes are bolted to the lower web of the side frames.

The cast-steel journal boxes are of special design and are fitted with roller bearings, which insure efficient mechanical transmission of power and economy of battery current. The weight of the car is supported from the journal boxes by two heavy coiled springs.

Brake tension is effected by the screw-and-nut principle, the brake spindle having a square thread on which a nut which carries an equalizing bar attached to the brake lever system travels. This furnishes a very efficient method of braking, as a slight exertion only on the part of the operator is required and the brakes are automatically locked in any position without the use of pawls or ratchets.

The wheels are pressed on and securely keyed to the axles. The axles are made of a special grade of steel, and are case-hardened at the journals, so that there is very little wear either on the roller bearings or on the axles.

The motors used are of the automobile type, designed to operate from batteries, and have characteristics that effect the maximum possible economy in the use of battery current. They have high efficiency, large overload capacity and practically sparkless commutation. The high efficiency is obtained by designing the motors with a small air gap and running the iron at low densities. On account of the low densities, the speed and torque characteristics are steeper than in the case of the ordinary series motors, a feature which tends to reduce the overload which can be thrown on the battery. The armature shaft rotates in ball bearings, and consequently the friction losses are very light and the wear of the bearing is practically negligible. The motors are compactly de-

signed, yet are readily accessible for inspection and repairs. They are also dust and moisture proof, and are mounted in a cast-steel suspension cradle, one side of which is supported on bearings on the axle, while the other side is spring suspended from the locomotive frame. The motor drives the axle through double reduction gearing, an intermediate shaft, supported

all variations of loads. The top of the crank case can be removed for the purpose of inspecting the connecting rod and cam shaft. Both the exhaust and intake valves are mechanically operated and so arranged that by taking out the top screws both valve heads can be taken off and the valves removed for inspection and grinding.

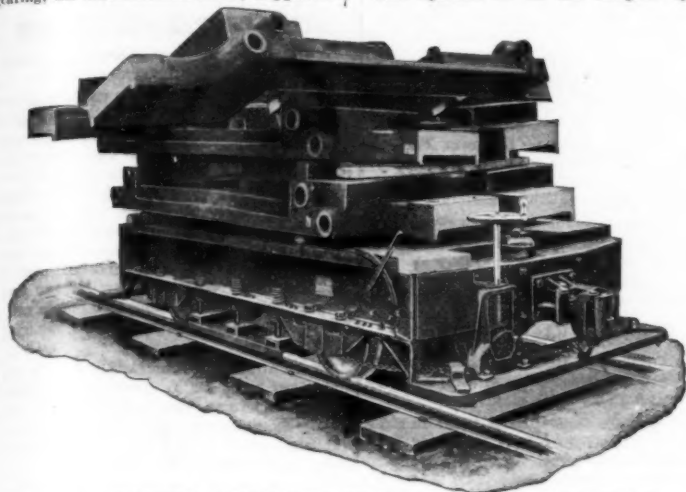
The dynamo is of the six-pole type,

serving and measuring water for power, irrigation, manufacturing and domestic use in the United States. His references included the important part which the meters invented and developed by Henry R. Worthington have taken in the measurement of water since he invented his first water meter in 1849. This first meter has stood the test of time, having a record of over 60 years of accurate use. In the course of his address Colonel Drew made the following statements:

"The firm of Henry R. Worthington, 115 Broadway, New York, has kept pace with progress in development of various types of meters and has designed and con-

the inferential type. It works equally well in a horizontal or vertical position, and can be used at any working pressure up to 500 pounds, and shows a high degree of accuracy on small as well as large flows.

"The Worthington recording liquid weigher, type "B," is an apparatus designed for measuring liquids by weight, and is a reliable automatic water-weighing meter. It records the weight, therefore the counter reading is final without making any allowance or calculation. It is simple, compact, durable and accurate in its performance, and offers accuracy irrespective of temperature or rate of



STORAGE BATTERY LOCOMOTIVE CARRYING 20 TONS OF CASTINGS.

in the bearing housing and cast integrally with the suspension cradle, carrying the intermediate gearing. As the service required of a storage battery locomotive is ordinarily performed at low speed, the use of the double reduction gearing permits slow speeds to be obtained without any rheostat losses, and very high tractive efforts are obtained at comparatively small current expenditure. When carrying light loads these locomotives have speeds of from four to five miles per hour, while on heavy loads the speed is from two to two and a half miles.

The storage batteries are especially designed for the service, being rugged in construction, and, due to the use of specially constructed plates, have high ampere-hour efficiency. The battery cells are grouped in four or more trays, and are mounted in an angle-iron crate, which is spring suspended from the locomotive frame.

Engberg's Opposed Cylinder Generating Sets.

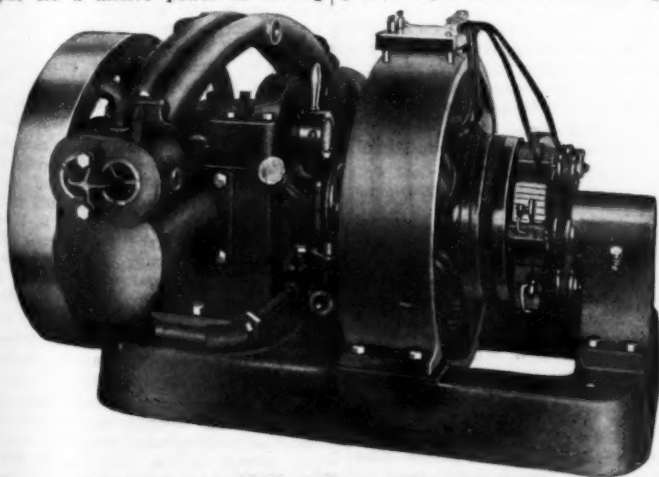
In order to produce a perfectly balanced engine for a motive power in driving

compound wound, direct current of 110 volts, unless otherwise specified. It is of ample size, being capable of carrying full loads without overheating. The commutator and brushes are made large to insure sparkless operation under all variations of loads and to allow sufficient wearing surface.

The splash oiling system is used throughout. The cylinders are also provided with sight-feed oil cups, and the main bearings are provided with compression grease cups.

This type of generator set is made in practically all sizes, descriptions and dimensions of which will be sent on request. It is claimed that their compactness, freedom from vibration and reliability, together with accessibility to all parts, make these sets ideal for lighting plants, as well as for charging automobile storage batteries, etc. They can also be used for other power purposes by placing a belt on the flywheel and raising the brushes from the commutator.

This company manufactures steam and gasoline operated direct-connected gener-



ENGBERG'S OPPOSED CYLINDER GENERATING SET.

dynamo, Engberg's Electric and Mechanical Works, St. Joseph, Mich., has developed and manufactures direct-connected generating sets using opposed cylinder type of gasoline engines, as shown in the accompanying illustration. The engine is fitted with jump-spark ignition and is water-cooled, being fitted with a circulating pump located on the dynamo side of the engine. A governor is provided in the flywheel, operating the throttle valve on float feed carburetor, thus taking care of

ating sets, steam engines, searchlights, switchboards, electro-hydraulic valves, etc.

Water Meters and Their Use.

After having briefly stated what was accomplished by the ancients in the practice of conserving and measuring water supplies, Col. John A. Drew, in a paper recently presented before the Brooklyn Engineers' Club on the subject of "The History of the Water Meter and Its Use," referred to the present practice in con-

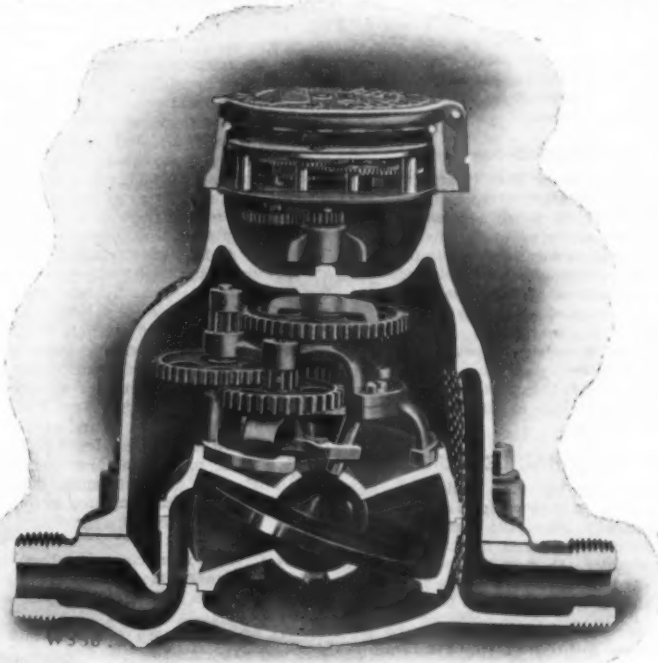
structed the Worthington disk meter shown in the accompanying illustration; the Worthington turbine meter, also illustrated herewith; the Worthington Arrow meter and the Worthington recording liquid weigher.

"The disk meter represents the most advanced practice in design and construction of this type. The working parts are all interchangeable, and the water-balanced disk is employed, thus reducing the wear to a minimum.

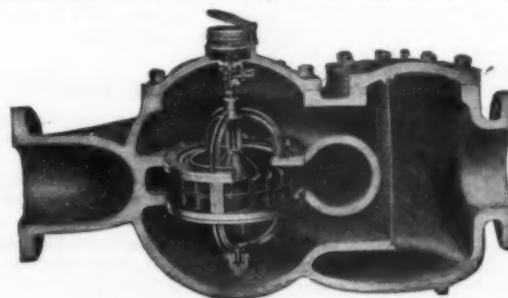
"The Worthington turbine meter is a development of the well-known Worthington turbine pump. It is of the current-velocity type, designed to handle large

flow. The installation of the closed liquid weigher in combination with a Blake-Knowles open feed-water heater, receiving tank and boiler-feed pump, connected up completely for delivering feed water through a boiler, represents an ideal installation for power plants. With a continuous record from a water weigher so placed the highest standard of efficiency in a power plant can be maintained. Its use leads to definite determinations of boiler efficiency, steam consumption of engine and pump, heating value of the fuel used and efficiency of the firing.

"The pitometer is a recent addition to the water meter list, and is an apparatus



WORTHINGTON FLAT DISC WATER METER.



WORTHINGTON TURBINE WATER METER.

quantities of water with minimum loss of pressure. It is very sensitive on small flows, thus satisfying the demand of the most exacting service. The wheel is of special composition of nearly the specific gravity of water and is carried on a vertical shaft of Tobin bronze revolving on a jeweled bearing. These meters are made for hot or cold liquids and for heavy pressures.

"The Worthington Arrow meter is a straight flow meter designed for handling large and small quantities of water without appreciable loss of pressure. It is of

for measuring and detecting waste in service mains, measuring flow from weirs and testing the capacity and slip of pumping engines. The principles of the pitometer are very old, and are similar to the ancient Nile-gauge. It has great merit as a slip indicator, its functions making it an indispensable apparatus to the hydraulic engineer."

The firm of Henry R. Worthington has compiled a catalogue describing all its meters in detail, which contains much valuable data and will be sent on application.

Construction Department

TO OUR READERS!

In order to follow up properly the Construction Department items, please bear in mind the following statements:

EXPLANATORY

The MANUFACTURERS RECORD seeks to verify the items reported in its Construction Department by full investigation. It is often impossible to do this before the item must be printed or else lose its value as news, and in some items it is found advisable to make statements as "it is reported" or "rumored," and not as positive information. If our readers will note these points they will see the necessity of the discrimination. We are always glad to have our attention called to errors that may occur.

HOW TO ADDRESS

The name of one or more incorporators of a newly incorporated enterprise should always be shown on letter addressed to the official headquarters or to the town of the parties sought, as may be shown in the item. Sometimes a communication merely addressed in the corporate or official name of a newly established company or enterprise cannot be delivered by the postmaster. By following these general directions the postoffice will be enabled to deliver your mail promptly, although it is inevitable that some failure by the postal authorities to deliver mail to new concerns will occur.

WRITE PERSONAL LETTERS

In communicating with individuals and firms reported in these columns a letter written specifically about the matter reported will receive better and quicker attention than a circular. In most instances a return postal card or addressed and stamped envelope should be enclosed with letter.

In correspondence relating to information published in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

The Daily Bulletin of the Manufacturers Record is published every business day in order to give the earliest possible news about new industrial, commercial, building, railroad and financial enterprises organized in the South and Southwest. It is invaluable to manufacturers, contractors, engineers and all others who want to get in touch at the earliest moment with new undertakings, or the enlargement of established enterprises. The subscription price is \$25 per year. On all advertising contracts in the Manufacturers Record for three months or longer a subscription to the Daily Bulletin is included for the contract period.

BRIDGES, CULVERTS, VIADUCTS

Ark., Clarendon.—St. Louis Southwestern Railway, C. D. Purdon, chief engineer, Tyler, Tex., awarded contract to Wisconsin Bridge & Iron Co., Milwaukee, Wis., to construct drawbridge requiring 700 tons steel shapes.

D. C., Washington.—Department of Bridges, District of Columbia, is preparing plans, under supervision of Thomas C. J. Bally, Jr., engineer of bridges, 531 Randolph St., for bridge over Rock Creek at Q St.; proposed structure will consist of seven full-centered arches of 40, 41, 42, 43, 42, 41 and 40-foot spans, with sidewalk corbels consisting of arches of about seven-foot span, projecting beyond face of wall about nine feet; center line of bridge will be on radius of 474 feet; greatest height of deck above valley, about 65 feet; 30-foot roadway and two 10-foot sidewalks; ornamental plaza at either end of structure; flanked at either end by two bronze lions, models for which are being made by A. Phimister Proctor, sculptor, New York; appropriation authorized by Congress, \$275,000; W. V. Judson, engineer District Commissioners, will supervise construction; Glenn Brown, secretary American Institute of Architects, 1741 New York Ave. N. W., has been engaged in advisory capacity. (Recently mentioned.)

Fla., Tampa.—Tampa & Gulf Coast Railway, Charles H. Brown, president, Tampa, will construct one large and two small bridges. (See "Machinery Wanted.")

Md., Baltimore.—Pennsylvania Railroad Co. plans to construct concrete bridges across

Back and Bush rivers, replacing present wooden trestles; has asked bids, but no authority has been given for the work; A. C. Shand, chief engineer, Broad St. Station, Philadelphia, Pa.

Miss., Meridian.—City and Southern Railway (B. Herman, chief engineer, Washington, D. C.) contemplates construction of viaduct across railroad tracks to connect South Side with city proper; John W. Parker, Mayor.

Mo., Sibley.—Atchison, Topeka & Santa Fe Railway system, A. F. Robinson, bridge engineer, Railway Exchange Bldg., Chicago, Ill., advises Manufacturers Record relative to previously-noted rebuilding of bridge across Missouri River: Piers over main channel to be founded on bed rock; remodel west abutment and pier No. 1; replace 80-foot deck girder span and 200-foot deck truss span with two 100-foot deck girder spans and new center pier; replace three 396-foot through truss spans, taking 8 to 20 feet from tops of four supporting piers, and rebuild in concrete; rebuild three deck truss spans, remodeling piers where necessary; rebuild 2000 linear feet of steel viaduct, including sub and super structure; structure designed for E-90 loading; plans include reinforced concrete piles, ballast deck with footwalk and hand railing; steel brackets for wires; single-track structure with gauntlet tracks to be laid across; commenced replacement of 396-foot spans; contract let to American Bridge Co., 30 Church St., New York, for steel superstructure for entire bridge, and to Missouri Valley Bridge & Iron Co., Leavenworth, Kans., to remodel four piers, build false work, take down old spans and erect three new spans; contemplates letting contract for substructure of approaches; erection of metal work in approaches by company's force; lower clearance line under main spans to be lowered two feet below present position; rebuilding cost, about \$1,300,000.

N. C., Durham.—City will construct culvert under Oakwood Ave. and Markham St.; bids received until February 5. Address City Clerk. (See "Road and Street Work.")

Tenn., Chattanooga.—City officials and Southern Railway (B. Herman, chief engineer, Washington, D. C.) will consider construction of concrete bridge across tracks on Vine St.; Robert Hooke, City Engineer.

Tenn., St. Elmo.—City will construct bridge across Chattanooga Creek; bids received until March 1. (See "Sewers" and "Machinery Wanted.")

Tex., Nacogdoches.—City will construct two concrete bridges; bids received until February 13; J. R. McKinney, secretary. (See "Machinery Wanted.")

Va., Houston.—Halifax County Supervisors awarded contract to Roanoke Bridge Co., Roanoke, Va., to erect bridge across Banister River; plans by P. St. J. Wilson, State Highway Commissioner.

W. Va., Mt. Clare.—Clarksburg & Weston Railway Co., James O. Watson, general manager, Fairmont, W. Va., will construct bridge in connection with construction of 16 miles of railroad from Mt. Clare to Weston, W. Va.

CANNING AND PACKING PLANTS

Ark., Mammoth Spring.—Hodges & Lamb contemplate installing canning plant. (See "Machinery Wanted.")

Ark., Prescott.—Hastings Industrial Co., Chicago, Ill., submitted proposition for establishment of cannery.

Ark., Pine Bluff.—Simon Whitestone of Pine Bluff and O. L. Williams, Pottsville, Tex., are preparing plans for packing plant.

La., New Orleans.—United Fish & Oyster Co. chartered with \$500,000 capital stock; Frank McLaughlin, president; Samuel Moos, vice-president.

Mo., Orrick.—We-Wa-Wa Distributing Co. (F. G. Doggett and C. L. Watson) will erect corn processing plant; use special machine patented by Green Corn Processing Co., McAlester, Okla.

Tex., Harlingen.—F. G. Doggett and C. L. Watson will erect corn processing plant; use special machine patented by Green Corn Processing Co., McAlester, Okla.; recently noted to erect plant.

Va., Lodge.—Harry Hogan Company incorporated with \$25,000 capital stock; R. W. Winstead, president, Lodge; W. J. Courtney, vice-president, Mundy Point, Va.; J. B. Winstead, secretary, Lodge.

Va., Newport News.—Tomatoes.—F. L.

Smiley & Sons, R. F. D. No. 1, Roanoke, Va., will establish cannery recently mentioned; erect buildings about June under company's supervision; bids now open on machinery to cost about \$1000; can tomatoes; daily capacity at start, 800 to 1000 cases. (See "Machinery Wanted.")

Va., Newport News.—Levinson Packing Co. incorporated with \$25,000 capital stock; Max Levinson, president; S. D. Levinson, vice-president; J. A. White, secretary.

Va., Newport News.—Levinson Packing Co. incorporated with \$25,000 capital stock; Max Levinson, president; S. D. Levinson, vice-president; J. A. White, secretary.

Va., Richmond.—Johnson Pickle Corporation incorporated with \$75,000 capital stock; Archer G. Jones, president; James J. Pollard, vice-president; Charles A. Peple, secretary-treasurer.

CLAYWORKING PLANTS

Ga., Columbus.—Bricks.—F. J. Hanson, Fitzgerald, Ga., proposes organizing company to establish \$75,000 brick plant.

N. C., Granite Falls.—Bricks.—Granite Falls Brick Co. organized by P. L. Cline and J. G. Sherrill to manufacture brick; plant on Catawba River; daily capacity 20,000 bricks.

S. C., Fee Dee.—Brick and Tile.—Fee Dee Brick & Tile Co. incorporated with \$25,000 capital stock by T. R. Barringer and C. P. Berry.

COAL MINES AND COKE OVENS

Ala., Sayre.—Sayre Mining & Manufacturing Co. will make improvements at mines to cost about \$10,000; will improve buildings, extend electrical system and purchase new machinery; at present is producing 1000 tons coal daily.

Ark., Van Buren.—S. M. Hammock has been engaged by the Campbell heirs to prospect coal properties; development to be undertaken.

Ky., Browder.—Mecklenburg Coal Co. incorporated with \$60,000 capital stock; T. B. Caldwell, president, secretary and treasurer; E. J. Manigan, vice-president; C. D. M. Greer, sales manager; operate equipped mines (two) at Browder and Radiant; acreage 11,400; daily output 1400 tons.

Ky., Denton.—Magnet Jellico Coal Co. incorporated with \$50,000 capital stock by Isaac Glickman, Katie Glickman and Charles Schuff.

Ky., Middlesboro.—Edgewood Consolidated Coal Co., Ed J. Douglass, general manager, will, it is reported, install machinery and washer.

Ky., Pineville.—Rockhouse Coal Mining Co. will, it is reported, build 100 coke ovens.

Ky., Pittsburg.—J. Lee Caldwell will develop coal mines.

Tenn., Knoxville.—Peerless Coal Co. incorporated with \$100,000 capital stock by J. Cleveland Harris, Walter S. Roberts, Dan R. Sawyer, L. W. Armstrong and Harry T. Darnall; will develop 500 acres coal land.

Tenn., Nashville.—Brush Street Coal Co. increased capital stock from \$12,000 to \$50,000.

Tenn., Nashville.—Brush Creek Coal Co. increased capital stock from \$12,000 to \$50,000.

Tex., Calvert.—Central Texas Fuel Co. is being organized by P. T. Norton and Robert Magee to develop coal mines.

W. Va., Kermit.—Grey Eagle Coal Co. incorporated with \$60,000 capital stock by E. M. Lambert, Everett Leftwich, B. R. Bias, W. H. Walters and G. R. Wiles.

W. Va., Huntington.—Pinson Fork Coal Co. incorporated with \$100,000 capital stock by A. E. Bush, E. M. Watts, T. J. Bryan, Donald Clark and others.

W. Va., Moundsville.—Ben Franklin Coal Co. chartered with \$250,000 capital stock by M. J. McQuade, A. L. Iseman, M. A. McQuade, F. E. Iseman and C. E. Hild, all of Freeport, Pa.

W. Va., Wake Forest.—Wake Forest Mining Co. (main offices, Charleston, W. Va.) increased capital stock to \$50,000.

CONCRETE AND CEMENT PLANTS

Ga., Portland.—Portland Cement.—Piedmont Portland Cement Co. will issue bonds for \$250,000; increase daily capacity of plant from 500 to 1500 barrels cement; will not be prepared to figure on building and machinery details and contracts until May 1; W. H. Davis, treasurer; office at Atlanta, Ga. (Lately mentioned.)

Tenn., Dyersburg.—Wilson Concrete Co. incorporated with \$5000 capital stock by H. C. Wilson, W. G. Burks, Pearl Burks, C. Simpson and William Aldrich.

COTTON COMPRESSES AND GINS

N. C., St. Pauls.—Opie Odum will rebuild two cotton gins recently burned.

Tenn., Memphis.—Memphis Warehouse Co. wires Manufacturers Record as follows: "Made application for change of name and charter and will shortly be known as Memphis Terminal Co.; compiling plans for increasing present capacity 50 per cent.; will then cover with warehouse and terminals 162 acres." On January 27 company's stockholders met to consider reorganization and issuing \$2,500,000 of stock and \$2,500,000 of first mortgage bonds to pay present first and second mortgage bonds and obtain \$400,000 to \$500,000 for improving and enlarging plant.

Tex., Falfurrias.—People's Ginning Co. has organized with H. L. Inselman president, Obed Zimmerman vice-president, R. E. McBryde secretary-treasurer; will continue established plant. (Previously noted incorporated with \$12,000 capital stock.)

Tex., Harlingen.—M. C. Gregory of New York will build eight-stand cotton gin.

Tex., San Benito.—San Benito Cotton Gin Co. contemplates doubling capacity of gin; E. N. Greene, president. (Recently reported incorporated with \$30,000 capital stock.)

Tex., San Benito.—C. S. Reynolds will erect addition and install cotton gin, increasing present capacity; has received 200-horse-power engine.

DRAINAGE AND IRRIGATION

La., Houma.—Bayou Cane Land Co., Meyer Eismann, secretary, New Orleans, La., awarded contract at \$63,000 to Crescent Construction Co. of Winnie, Ind., to reclaim 6614 acres of Terrebonne parish land; work involves digging ditches for draining by gravity; engineer in charge, John A. Kruse of New Orleans and Chicago, Ill.

La., New Orleans.—Louisiana Meadows Reclamation Co. incorporated with \$150,000 capital stock; A. T. Dusenbury, president; W. R. Pennington, vice-president; A. B. Graves, secretary; Edward Wisner, treasurer.

Miss., Milledge.—Black Creek Drainage District Commissioners will construct drainage canal from point on Tchula Lake near Milledge; length, 5½ miles; 10 feet wide at bottom, with side slope of 1 to 1; average depth of 8 feet; will receive bids at office of Noel, Boothe & Pepper, attorneys, Lexington, Miss.; James F. Fontaine, engineer, Lyons, Miss. (See "Machinery Wanted.")

Miss., Vaiden.—Drainage Commissioners of Carroll county will construct 7½ miles of ditch or canal in second district of Carroll county; 21 feet wide; 7 feet deep; will drain 4600 acres for farming purposes; cost \$20,000; bids opened February 19; James Somerville, member Board of Drainage Commissioners. (Recently noted. See "Machinery Wanted.")

Mo., Latour.—Johnson and Henry counties will expend \$46,000 and \$48,000, respectively, in reclaiming about 8000 acres of land; contract for 58,000 yards of laterals and main ditches recently noted awarded to R. H. & G. A. McWilliams, Steger Bldg., Chicago, Ill., and to Johnston & Young, Blairstown, Mo., for remainder of lateral work; Brooks & Jacoby, 515 Shukert Bldg., Kansas City, Mo., engineers.

Okla., Oklahoma City.—National Irrigation Co. incorporated by Henry M. Scales, J. A. Sinclair and R. E. Moist.

Tex., Bay City.—Plans for Matagorda County Drainage District No. 3 include 24 miles of main ditches and four miles of laterals; bottom widths, four to six feet; depth, two to seven feet; slope, one to one; about 158,000 cubic yards of excavation; also 300 linear feet of bridging ditches and clearing 300 small trees; George G. Lovering, engineer, Palacios, Tex. (Recently noted to receive bids until February 15.)

Tex., Bay City.—E. N. Gustafson, civil engineer, Bay City, states that he is assistant engineer for two proposed drainage districts in Matagorda county; bonds amounting to \$250,000; contracts not let.

Tex., Raymondville.—Union Irrigation District, Albert T. Woodhouse, president (recently noted to vote issuance of \$100,000 of bonds), will complete preliminary surveys for gravity canal 96 miles long, involving expenditure of \$2,000,000; will irrigate about

100,000 acres of farm land; V. L. Conrad, district engineer; bids for preliminary engineering, surveying, etc., received until March 5; A. T. Woodhouse, president; Frank S. Miller, secretary. (See "Machinery Wanted.")

ELECTRIC PLANTS

Ala., Montgomery.—Montgomery Light & Traction Co. submitted to City Commission detailed plans and estimates prepared by Consulting Engineer W. N. Kelsor of Chicago for placing underground all overhead wires and cables; estimated cost \$35,000.

Ark., Clarksville.—City (previously noted as having surveys made by Winters & Dove, Fort Smith, Ark.) will construct 200 horsepower electric-light plant; steam power; 36x60 feet; tar and gravel roof; cost \$30,000 to \$35,000; bids opened March 1; W. N. Gladstone, consulting engineer; T. E. May, chairman Board of Improvement. (See "Machinery Wanted.")

Ark., Texarkana.—Texarkana Gas & Electric Co. contemplates extending transmission line two miles; W. L. Wood, Jr., is manager.

Ark., Little Rock.—Arkansas Valley Interurban Railway will build substation in Rocky Ford; awarded contract to Rocky Mountain Cement Co.

Ark., Osceola.—City will open bids about March 10 for constructing electric-light plant and for machinery; size 55x69 feet; tar and gravel roof; steam power; cost \$30,000 to \$35,000; machinery will include direct-connected units, boilers, switchboard and distributing system; W. N. Gladstone, consulting engineer, Fayetteville, Ark.; W. J. Lamb, chairman Board of Improvement. (See "Machinery Wanted.")

Fla., Zephyr Hills.—Francisco & Son are interested in installation of electric-light plant.

Ga., Meigs.—City, E. E. Wilkes, Mayor, will probably open bids about April 1 on construction of electric-light plant; 250 to 300 horse-power; erect combination water and light building costing about \$2000; building proposals opened about March 15; investment \$25,000; bond issue recently noted. (See "Water-works.")

Ky., Louisville.—Louisville Railway Co., T. J. Minary, president, will erect power plant on High St.; estimated cost, \$300,000.

Md., Baltimore.—City has asked Legislature to authorize proposed \$2,000,000 loan to extend subway system for electric, telephone and telegraph wires; details will be in charge of Electrical Commission, Raleigh C. Thomas, chief engineer, American Bldg.

Md., Centerville.—Town is considering construction of electric-light plant. Address Town Clerk.

Mo., Bevier.—City Council contemplates bond issue for municipal improvements, including purchase of electric-light plant installed by Commercial Club. Address The Mayor.

Mo., Bevier.—Bevier Electric Light & Power Co. incorporated with \$10,000 capital stock by J. W. Nisbeth, D. D. Rowland, W. R. Morgan, Edward Watson and Waldo Edwards.

Mo., Tarkio.—City will vote on \$27,000 bond issue for purchase of electric-light plant and water-works of Tarkio Electric & Water Co. Address The Mayor. (See "Water-works.")

N. C., Kernersville.—City will vote in March on bond issue for installation of electric-light plant; W. C. Stafford, Mayor. (Amount recently noted as \$5000.)

N. C., La Grange.—Town will vote March 4 on \$30,000 bond issue for electric-light plant, etc. Address D'Leon M. Fields, Town Clerk. (See "Water-works.")

N. C., St. Pauls.—Opie Odum will rebuild burned electric plant.

Okla., Tulsa.—Sand Springs Interurban Railway Co. will erect substation at Archer and Brady Sts.; main power plant is being built at Sand Springs.

S. C., Yorkville.—City voted bond issue for extension of electric-light system. Address The Mayor.

Tenn., Alamo.—City granted franchise to Alamo Light & Power Co. to construct electric-light and power plant.

Tenn., Springfield.—City awarded contract to Nashville Machine Co., Nashville, Tenn., to rebuild burned electric-light plant.

Tex., Dublin.—Henry and Frank Weiser and associates purchased electric-light plant and will operate.

Tex., Edna.—E. F. Glaze, Gollad, Tex., purchased Edna electric-light plant.

Tex., San Angelo.—San Angelo Power & Street Railway Co. will continue electric street railway formerly operated by J. D. Sugg; will erect power-house, purchase new equipment, extend system and otherwise improve.

prove. (Company recently reported incorporated with \$100,000 capital stock by J. D. Sugg, C. C. Kirkpatrick and W. T. Bartholomew.)

Tex., Wichita Falls.—Citizens' Light & Power Co. incorporated with \$21,000 capital stock by T. E. Dodson, I. W. Goldstein and Sam Levy.

Va., Pulaski.—Specifications have been prepared for electric-light plant; C. L. Wheeler, superintendent.

W. Va., Wheeling.—G. O. Nagle, general manager Wheeling Traction Co., states company has not completed improvement plans, to include recently-noted enlargement of South Side power plant; unconfirmed reports state \$1,000,000 has been appropriated for betterments.

FERTILIZER FACTORIES

Ga., Atlanta.—Hogansville Guano Co. incorporated with \$3000 capital stock by W. G. Davis, Alex. W. Smith and Gordon Hiles to manufacture commercial fertilizers.

Ga., Atlanta.—Cudahy Packing Co., E. A. Cudahy, president, 11 W. Monroe St., Chicago, Ill., will not erect fertilizer factory recently reported.

Ky., Louisville.—Louisville Fertilizer Co. purchased 11½ acres north of city on which to build fertilizer factory; reported investment \$300,000.

N. C., Raleigh.—C. B. Edwards, 123 W. Martin St., contemplates establishment of plant to manufacture bone fertilizers; will need machinery. (See "Machinery Wanted.")

Tenn., Springfield.—Taylor & Powell Fertilizer Co. incorporated with \$15,000 capital

Switch Co. incorporated with \$250,000 capital stock by Thomas C. Biggs, Roscoe F. Bishop and Paul Voss.

N. C., Greenville.—Foundry.—Palmetto Iron Works will erect foundry; 40x117 feet; brick. Okla., Oklahoma City.—Machine Shop.—Relba Shop Co. incorporated with \$5000 capital stock by G. T. Ambler, N. D. Bond and A. S. Leeper.

Tenn., Greenville.—S. L. Williams & Son will erect building for foundry and machine works.

Tenn., Lexington.—Machinery.—Southern Foundry & Machine Co. incorporated with \$10,000 capital stock by A. E. Beasley, C. G. Gathings, T. A. Lancaster, John S. Fielder and others.

Tenn., Nashville.—Ranges, Stoves, etc.—Allen Manufacturing Co. contemplates securing new location and increasing facilities.

Tex., Harrisburg.—Machine Shop.—Harrisburg Machine & Shipyard Co., J. W. Leary, president, Box 12 (recently noted incorporated with \$10,000 capital stock), will continue operation of former partnership business.

Tex., San Antonio.—Refrigeration and Machinery.—Germania Refrigeration & Machinery Co., Yale Hicks, president (recently noted incorporated with \$75,000 capital stock), will operate plant fully equipped for the present.

Tex., Temple.—Machinery.—McNey & Duff, Terrell, Tex., will establish foundry and machine shops; plans call for machine shop 32x80 feet, foundry 40x90 feet, blacksmith shop, pattern shop, etc.

Va., Richmond.—Philip Whitlock (Strick-

Springs Gas Co. will serve Sand Springs and vicinity with domestic and manufacturing gas; pipe partially bought and laid; Charles Page, president; C. F. Tingley, secretary; George Kinney, manager; capital \$50,000. (Under "Miscellaneous Factories" recently noted incorporated.)

Okla., Sapulpa.—Central Oil Co. incorporated with \$8000 capital stock by C. C. Cantrell of Sapulpa, John Smith and J. B. Swan of Henryetta, Okla.

Okla., Tulsa.—Exerow Oil Co. incorporated with \$5000 capital stock by G. W. Kinney, C. W. Klagsbury and C. F. Tingley.

Okla., Tulsa.—Mary Oil & Gas Co. incorporated with \$10,000 capital stock by Charles Page, T. D. Lyons and C. F. Tingley.

Okla., Tulsa.—Missouri-Okla. Oil Co. incorporated with \$15,000 capital stock by H. J. Rickabaugh and C. W. Deming of Tulsa, J. P. Dunnigan, J. T. Williams and O. N. Schudde, Sullivan, Mo.

Okla., Tulsa.—Mona Oil Co. incorporated with \$10,000 capital stock by J. D. Murphy, D. C. Acosta and F. A. Fulghum.

Tenn., Tullahoma.—Cumberland Oil Co., office of Doak Aydelott, purchased several hundred acres of land and leased 1000 acres; will prospect for development; company desires to make drilling contracts and to correspond with operators. (See "Machinery Wanted.")

Tex., Beaumont.—Last Chance Oil Co. incorporated with \$2500 capital stock by C. C. Burly, N. F. Gray and J. E. Daniels.

Tex., Center.—Shelby County Oil Co. incorporated with \$1500 capital stock by Blaine Woods, Ed. Norris, R. V. Payne and others.

Tex., Fort Worth.—Stoves.—Little Giant Stove & Novelty Manufacturing Co., 8th and Houston Sts. (recently noted incorporated with \$40,000 capital stock), will install foundry and stamping machinery to manufacture gasoline heating and cooking stoves; open proposals March 1 for erection of \$10,000 50x100-foot fireproof building; J. H. Greer, president; Lewis Alverson, secretary and manager.

Tex., Sherman.—North Texas Oil & Gas Co. incorporated with \$25,000 capital stock by W. S. Russell, Eugene Cherry and Dupont P. Lyon.

W. Va., Buckhannon.—J. M. King Gas Co. incorporated by J. M. King, L. H. Trippett, Eugene Brown, B. F. Whitescarver and W. E. Arnett.

W. Va., Buckhannon.—Cunningham Oil & Gas Co. incorporated with \$8000 capital stock by J. M. King, Eugene Brown, William Post, C. D. Munson and L. H. Trippett.

W. Va., Charleston.—Vernon Oil & Gas Co. incorporated with \$21,000 capital stock by V. T. Frizzell, M. E. Moore, J. F. Bedell and others.

W. Va., Charleston.—Moorzell Oil & Gas Co. incorporated with \$35,000 capital stock by M. E. Moore, V. F. Frizzell, J. F. Bedell, Joe Wehrle and V. J. McGonagle.

W. Va., Charleston.—Blue Creek Royalty Co. incorporated with \$25,000 capital stock by J. F. Callison, W. C. Davison, Spencer Pierson, Ira G. Sayre and C. C. Wiley.

ICE AND COLD-STORAGE PLANTS

Ga., Atlanta.—Garner-Blakely Company, Bainbridge, Ga., secured permit to erect proposed refrigerator and office building; two stories and basement; 98x100 feet; brick; cost \$11,000; J. T. Kimbrough & Company are agents.

Md., Arlington.—Zimmerman Ice Co. will establish 30-ton raw water ice plant; machinery ordered. (Previously reported incorporated with \$40,000 capital stock by William T. Childs (Main St.), T. Irwin Zimmerman and others.)

Md., Baltimore.—L. Manuel Hendler, 5 Lloyd St., will build cold-storage plant and ice-cream factory. (See "Miscellaneous Factories.")

Md., Baltimore.—Terminal Freezing & Heating Co., 43-430 S. Eutaw St., awarded contract to Consolidated Engineering Co., Bromo-Seltzer Tower Bldg., to remodel plant; erect cooling towers and build foundation for extra engines and other additions; cost about \$7000; will also erect storage warehouse, 35x85 feet, three stories high; plans by George W. Wright; bidders estimating include B. F. Bennett Building Co., 123 S. Howard St.; Henry S. Rippel, 1-7 Clay St., and Consolidated Engineering Co., Bromo-Seltzer Tower Bldg. (Previously mentioned.)

Miss., Horn Lake.—Southern Packing & Produce Co., 505 Tennessee Trust Bldg., Memphis, Tenn., will install 10-ton ice plant and abattoir; Bradshaw-Ward Company of 31 Linden Ave., Memphis, consulting engineer;

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stock; will continue established plant; W. B. Taylor, president; W. A. Powell, vice-president; D. F. Shannon, secretary-treasurer.

Tex., Marshall.—Marshall Fertilizer Factory incorporated with \$15,000 capital stock by John Copeland, F. W. Graff and C. H. Boyd.

FLOUR, FEED AND MEAL MILLS

Ala., Birmingham.—Western Grain Co. incorporated with \$50,000 capital stock; E. Wilkinson, president and treasurer; Howard Douglass, vice-president, and B. C. Morgan, secretary; placed contract for machinery to manufacture 5000 bushels daily corn meal, grits and feed; is completing 150x240-foot mill-construction building of one and four stories. (Previously mentioned.)

Ky., Rineyville.—A. S. Wilmoth, Louisville, Ky.; Frank Wiseman, Leo Richardson and Robert Willmott of Rineyville will establish flour mill; daily capacity 50 barrels.

Ky., Munfordville.—Munfordville Milling & Lumber Co., A. R. Spencer, president, incorporated with \$5000 capital stock; plant constructed and mainly equipped. (See "Machinery Wanted.")

N. C., St. Pauls.—Opie Odum will rebuild two grist mills recently burned.

FOUNDRY AND MACHINE PLANTS

Ala., Bessemer.—Piping, etc.—United States Cast-Iron Pipe & Foundry Co., 71 Broadway, New York, is reported to have decided on plant repairs costing \$150,000; improvements to include rebuilding shops, installing new machinery, etc.; to begin work about May 1.

Ga., Atlanta.—Railroad Switches.—Atlanta

land Machine Co.) will erect machine shop; one story; brick, steel and wood; cost \$8000.

GAS AND OIL DEVELOPMENTS

Miss., Handsboro.—Gulf Coast Gas Co. will lay gas mains and furnish gas for lights or fuel.

Okla., Bartlesville.—Paul Oil Co. incorporated with \$10,000 capital stock by S. J. Polhamus, Claude Brannon and John H. Kane.

Okla., Bartlesville.—Morton Oil & Gas Co. incorporated with \$10,000 capital stock by O. A. Kraer, L. A. Rowland and J. D. Talbott.

Okla., Davis.—Davis-Arbuckle Development Co. has organized with E. A. Hill, president; G. B. Vaughn, vice-president; C. C. Ricker, secretary-treasurer; will develop oil, gas and mineral lands in Murray county; character of improvements, date of opening bids for construction, etc., not determined. (Recently noted under "Land Developments" as incorporated with \$250,000 capital stock.)

Okla., Lawton.—Electra-Texas Oil & Gas Co. incorporated with \$25,000 capital stock by A. B. Beatson and C. C. Jones of Oklahoma City and J. C. Brown, Franklin, Tenn.

Okla., Muskogee.—New Era Gas & Oil Co. incorporated with \$100,000 capital stock by N. A. Weems of Muskogee; W. A. Stinson and H. R. King, Frederick, Okla.; W. A. Jarvis and H. C. Buckler, Wichita, Kans.

Okla., Kiowa.—Kiowa Petroleum Co. incorporated with \$60,000 capital stock by W. E. Halley and Walter A. Evand of Kiowa, and J. E. Burke of McAlester, Okla.

Okla., Sand Springs, P. O. Tulsa.—Sand

equipment and machinery bids received until February 14 at Memphis office. (See Machinery Wanted.)

Mo., Smithville.—Smithville Electric Light Co. contemplates installing ice plant to cost about \$5000; A. C. Morton is secretary.

Tenn., Lenoir.—Lenoir Ice & Coal Co., J. R. Browder, president, will erect ice plant recently noted; construction by company; fireproof buildings; machinery purchased; daily capacity, 10 tons; cost \$10,000.

IRON AND STEEL PLANTS

Ala., Birmingham.—Iron Furnace.—Sloss-Sheffield Steel & Iron Co., J. C. Maben, president, has blown in iron furnace No. 2 on upper First Ave.; this furnace will succeed Furnace No. 1, which will be repaired as lately stated.

Okl., Guthrie.—Kenton Steel & Iron Co., Jas. W. Arnold, president, Charleston, W. Va., is proceeding with construction of previously-noted plant to cost \$60,000; 25 tons capacity; frame building; 100x250 feet; no bids; to be completed by July 1.

Tenn., Nashville.—Malleable Castings.—W. J. Miles, Jr., Middletown, O., is completing arrangements for plant to manufacture malleable iron and steel articles used in dentistry; reports state plant will represent \$200,000 investment. Mr. Miles wires Manufacturers Record: "Will advise full particulars next week from Nashville." (Recently mentioned.)

Va., Glen Wilton.—Iron Furnace.—Princess Furnace Co. has blown in iron furnace; also operates two iron mines. J. B. Hudson is local manager.

Va., Reusens.—Iron Furnace.—R. L. Parrish of Covington, Va., president of Oriskany Ore and Iron Corporation, general office at Buena Vista, Va., advises Manufacturers Record his company has awarded contract for constructing 150-ton blast furnace at Reusens, near Lynchburg; will also build nodulizing plant, as lately stated; has merged Barr Ore and Iron Corporation and increased capital to \$500,000; W. W. Taylor of Clifton Forge, Va., general manager of Oriskany company, in charge of construction. (Mentioned in November.)

LAND DEVELOPMENTS

Ala., Liverpool (not a postoffice).—Liverpool Land & Investment Co. is being organized with \$300,000 capital stock by W. M. Blount (president Birmingham & Southeastern Railway), Union Springs, Ala.; proposes to develop new town of Liverpool and erect reinforced concrete cotton warehouse with capacity of 5000 bales; Mr. Hume of Mobile, Ala., is dividing property into streets preparatory to grading.

D. C., Washington.—Massachusetts Avenue Realty Co. acquired 16 acres bounded by Massachusetts and Arizona Aves. and Quebec and 4th Sts.; John E. Wilkins (807 Hibbs Bldg.), Henry B. Spencer, Murray A. Cobb and John P. Story are incorporators of company and will erect residences for their own use; sell remaining sites.

D. C., Washington.—National Land & Development Co., temporary address, 914 W. St. N. W. (recently noted incorporated with \$50,000 capital stock), contemplates developments in suburban Washington and the South; plans include concrete-steel houses, bungalows, laborers' homes, barns and chicken-houses; John P. Jackson, president; Robert J. Harlan, treasurer; Thos. H. R. Clarke, secretary.

Fla., Jacksonville.—Jacksonville Sururban Realty Co. incorporated with \$30,000 capital stock; S. E. Cobb, president; B. C. Buck, vice-president; B. K. Buck, secretary-treasurer.

Fla., Monticello.—Southern Pecan & Orchard Co., branch office, 617 First National Bank Bldg., Chicago, Ill. (recently noted incorporated with \$50,000 capital stock), will develop (agriculturally) 4000 acres land in Jefferson county; machinery and implements purchased.

Georgia.—Howard Orchard Co. will be chartered to develop land for orchard growing in Northeast Georgia and Western North Carolina; also develop estate where orchard owners may build dwellings; organizer, Henry B. Howard, vice-president of American Apple Congress, First National Bank Bldg., Chattanooga, Tenn. (Lately mentioned as proposed.)

Ga., Atlanta.—A. M. Gammage and others purchased Cascade Springs property, comprising 78 acres, for \$25,000; will engage landscape architect to prepare plans and submit estimates for improvement of track as park, main features to include way-house for automobile tourists, pavilions, golf links, tennis courts, etc.; park proper will com-

prise 10 acres, remaining 68 acres to be divided into 5-acre villa sites and developed as residential park; expenditure estimated at \$100,000.

Md., Baltimore.—Southern Maryland Development Co. chartered with \$300,000 capital stock for developments in connection with Baltimore & Virginia Railroad; address care Littleton M. Sturgis, 301 Gaither Bldg.

N. C., Charlotte.—W. Gould Brokaw of New York purchased 1500 acres in Long Creek township, including Mida mineral spring; engaged Hunter & Gordon, Realty Bldg., Charlotte, to prepare plans for improvements, including hunting preserve, roads, 18-hole golf course, polo course, etc.; will also build bottling works operated by electricity (furnished by Southern Power Co.) and clubhouse.

Okl., Muskogee.—Park Hill Improvement Co., 622 Equity Bldg. (recently noted incorporated with \$3000 capital stock) will develop 75 acres of land in Muskogee and several hundred acres of farm lands in Eastern Oklahoma; improvements include water-works, electric lights and paving. (See "Machinery Wanted.")

Okl., Hugo.—Klamich Development Co., Nellie C. Barrett, secretary-treasurer, will develop townships. (Recently noted incorporated.)

Okl., Oklahoma City.—City will vote February 12 on \$250,000 bond issue to purchase land for park purposes. Address The Mayor.

S. C., Columbia.—Lake View Investment Co. incorporated by B. L. Abney, W. Boyd Evans and others; purchased 1600 acres of land at \$100,000; contains 170-acre lake; plans include development of cottage settlement, erecting tourist hotel and electric line from Columbia to Camden, S. C.

Tenn., Chattanooga.—Central Park Land Co. incorporated with \$75,000 capital stock by R. S. Faxon, L. W. Llewellyn, N. T. Montague, Frank Spurlock and Joe E. Brown.

Tenn., Memphis.—Speedway Land Co., F. W. Faxon & Co., agents, Memphis, will develop 175 acres of land for residential purposes; 100 acres already under development; cost \$75,000; capital stock, \$225,000; will let contract in about 60 days for additional sidewalk construction; J. M. Gaines, 71 Madison Ave., Memphis, engineer in charge; contract for paving recently noted awarded in Speedway Terrace. (See "Roads and Streets.")

Tex., Cleveland.—Southeast Texas Land Co. incorporated with \$10,000 capital stock by J. M. Hubert, Jeff Cochran and E. C. Smith.

Tex., Houston.—South Texas Farm Land Co., W. B. Reeve, president (recently noted incorporated with \$2500 capital stock), will develop 5000 acres land in Harris and Montgomery counties; buildings, roads and cultivation; South Texas Engineering Co., engineer in charge.

Tex., Houston.—Fred A. Jones will develop tract about 700x120 feet as negro settlement; improvements will include drainage and sewerage systems, electric lighting, sidewalks, streets and 80 bungalows; street to be known as Washington highway will extend through center of property and be paved with shell; at entrance to street will be gateway of masonry columns; each dwelling will have porch, electric lights, bath, etc.; entire investment about \$100,000.

Va., Harrisonburg.—Bent Willow Orchards Corporation incorporated with \$15,000 capital stock; John P. Burke, president; Edward C. Martz, secretary.

Va., Richmond.—Buffalo Ridge Springs incorporated with \$250,000 capital stock to operate Buffalo Ridge Springs property in Nelson county; Spencer M. Free, president, Du Bois, Pa.; Charles D. Mundy, treasurer, Cornwall, N. Y.; John M. Saxton, secretary, 996 Drexel Bldg., Philadelphia, Pa.

Va., Stuart.—Stuart Orchard Co., S. A. Thompson, secretary-treasurer, will develop 600 acres of land as peach, apple and cherry orchard about four miles from Stuart; company is caring for and cultivating 32,000 trees; expenditure, \$60,000. (Recently noted to increase capital stock to \$75,000.)

Va., Scottsville.—Harris Land Corporation incorporated with \$10,000 capital stock; F. W. Harris, president, Roncerverte, W. Va.; Charles B. Harris, Jr., vice-president; H. G. Harris, secretary; Chas. B. Harris, treasurer; will deal in and improve farm lands; has options on land tracts, to be divided into smaller tracts.

W. Va., Clarksburg.—Post-Stout Land Co., 507 Golf Bldg., will develop 108 acres of land about one mile from Clarksburg for factory sites; D. D. Britt, engineer in charge; Lee Stout, president; M. R. Post, vice-president; Howard Post, secretary-treasurer. (Recently noted incorporated with \$25,000 capital stock.)

W. Va., Hedgesville.—Pittsburg Orchard Co.

will develop 300 acres of land for planting apple orchard; cost \$50,000; G. W. Van Metre, Martinsburg, W. Va., engineer in charge. (Recently noted incorporated with \$25,000 capital stock.)

LUMBER MANUFACTURING

Ark., Pine Bluff.—R. M. Fletcher Lumber Co. of Pine Bluff and Hampton Stave Co. of Fordyce, Ark., purchased pine and hardwood timber on 45,000 acres of land adjacent to Pine Bluff for \$200,000; purchasers will erect five portable sawmills and two others to cut hardwood; Fletcher company will install planing mill and Hampton company hardwood plant.

Fla., Idalia (not a postoffice).—E. C. Jordan Company, Olga, Fla., will erect recently-described sawmill; plans and construction by E. C. Jordan.

Ga., Savannah.—Hilton-Dodge Lumber Co. (previously noted incorporated with authorized capital stock of \$7,500,000) consolidates Hilton & Dodge Lumber Co., Sapelo Land & Lumber Co., Southern Export Co., Vale Royal Manufacturing Co., Mill Haven Company, Savannah Mercantile Co., Cypress & Pine Timber Co., Westmoreland Lumber Corporation and Floyd's Neck Land & Timber Co.; headquarters, Savannah; branch offices at New York, Philadelphia, Boston and Portland; president, R. H. Knox; first vice-president, J. R. Paschall, Richmond, Va.; second vice-president, James L. Foster; treasurer, Thomas Hilton; secretary, W. F. Kinsey; company's land and timber holdings include 552,385 acres in Georgia and South Carolina, mainly cypress and long and short leaf yellow pine; sawmills at Savannah and Belfast, Darien, Brunswick and Satilla Bluff, Ga., and Wiggins, S. C.; annual capacity 150,000,000 feet lumber.

Ky., Hazel.—Hazel Lumber Co. incorporated with \$10,000 capital stock by W. D. Kelly, J. E. Underwood, H. F. Sose and L. Hooper.

La., Vivian.—Louisiana Lumber Co. incorporated with \$30,000 capital stock; W. H. Welch, president; F. H. Brown, vice-president; J. P. Cook, secretary-treasurer.

Miss., Georgetown.—Consolidated Lumber Co., Thos. R. Lewis, president, Indianapolis, Ind., will erect planing mill recently noted; plans not ready for announcement; construction by company; M. A. Baker of Indianapolis, architect; cost of buildings and machinery about \$40,000; character of machinery not decided.

Miss., Corinth.—M. M. Elledge Lumber Co. incorporated with \$15,000 capital stock by M. M. Elledge of Corinth, W. L. Elledge of Iuka, Miss., and J. M. Foote, Burnsville, Miss.

Miss., Monroe.—Alabama-Mississippi Lumber Co., C. E. Borgeson, general manager, Heyworth Bldg., Chicago, Ill., advises Manufacturers Record that company has purchased timber from E. E. Douville and plant of Franklin Lumber Co.; plans not ready for announcement.

Mo., Altenburg.—Miesner Lumber Co. incorporated with \$50,000 capital stock (not \$550,000 as recently reported); will probably install machinery during summer or fall; M. D. Miesner, president; G. Grebing, vice-president; B. M. Hemman, secretary; J. E. Lottes, treasurer.

N. C., Elkin.—Blue Ridge Manufacturing Co. incorporated with \$25,000 capital stock by R. H. Chatham, G. T. Roth, R. M. Reese, R. M. Chatham and others.

Tennessee.—Morton Butler Timber Co. chartered with \$500,000 capital stock by Morton Butler, William C. Boyden, Laird Bell and others, all of Chicago, Ill.

Tenn., Chattanooga.—King-Baxter Lumber Co. increased capital stock from \$20,000 to \$30,000.

Tex., Beaumont.—George W. Smyth Lumber Co. incorporated with \$100,000 capital stock by J. B. Smyth and C. E. Walden of Beaumont, J. G. Smyth and L. M. Smyth of Uvalde, Tex., and others.

Tex., Fort Worth.—Fort Worth Heavy Hardwood Co. increased capital stock from \$35,000 to \$60,000.

Tex., Nacogdoches.—Sullivan Lumber Co. incorporated with \$10,000 capital stock by J. H. Sullivan, Thomas E. Baker and Frank Sharp, Jr.

Tex., Fort Arthur.—Texas Company (main office Houston, Tex.) will install sawmill and manufacture wooden cases for oil tins.

Va., Pulaski.—Stone-Huling Lumber Co., James A. Stone, president, Bristol, Va.—Tenn., will not at present install planing mill recently reported.

W. Va., Beckley.—Mankin & Crouch contemplates development soon of 3500-acre timber tract in Raleigh and Fayette counties;

plans not definite. (Recently noted purchased.)

METAL-WORKING PLANTS

N. C., Liberty.—Metal Wash Boards—Eagle Manufacturing Co. organized with \$25,000 capital stock; contemplates installing equipment for galvanizing; J. H. Johnson is secretary-treasurer; machinery mainly purchased. (See "Machinery Wanted.")

MINING

Ala., Sycamore.—Marble.—Alabama Marble Co., John F. Flowers, president, Montgomery, Ala., is reported as to develop marble quarries.

Ky., Bowling Green.—Stone.—Hubert D. Graham will develop stone quarries.

Ky., Marion.—Iron, etc.—Globe Metals, Rare Earth & Oil Exploitation Co. incorporated by David C. Loveless, Lorenzo Barnhardt and others; plans to develop 7900 acres iron and fluor spar lands in Crittenden and Livingston counties.

Mo., Cartersville.—Lead and Zinc.—Smelter Lead & Zinc Co., R. C. Gates, manager, contemplates enlarging and remodeling plant, probably doubling capacity; E. W. Hunt and H. M. McGill are also interested.

Mo., Carthage.—Lead and Zinc.—G. M. Mining Co. incorporated with \$50,000 capital stock by H. G. Glenn, E. M. Murphy and W. H. Waters, Jr.

Mo., Galena.—Beckman & Lindeman will, it is reported, erect concentrating plant on lease in North Empire.

Okl., Miami.—Lead and Zinc.—Dollar Mining Co., W. W. Bavington, vice-president and general superintendent, general office, Okmulgee, Okla., has contract to buy five-acre lease with 150-ton concentrating mill, complete; will drill for deeper run adjoining this lease; also has lease on 80 acres unprospected land; contemplates taking over other leases with mills. (Recently noted incorporated with \$150,000 capital stock.)

Okl., Tishomingo.—Pioneer Mining & Milling Co. incorporated with \$30,000 capital stock by P. B. Shearer, H. B. Knisley, M. L. Garrett, John T. Young and others.

MISCELLANEOUS CONSTRUCTION

Fla., Key West.—Docks, Wharves, etc.—Florida East Coast Railroad, William J. Krome, consulting engineer, Marathon, Fla., will construct deep-water terminals, consisting of single pier 2000 feet long extending from shore line to 24-foot contour in man-of-war harbor; pier 134 feet wide; reinforced concrete gravity retaining walls with rock filling between; depth of 24 feet water will be dredged for full length of pier; also inner basin dredged to same depth; coaling station and slips for ocean car ferries will be built along inner basin; work by company's force; Ernest Cotton, division engineer at Key West, will be in charge. (Recently noted.)

Fla., Jacksonville.—Terminal Facilities.—City contemplates providing special terminal facilities, ferries, etc.; plans not matured; G. R. De Saussure, chairman of committee; Wm. S. Jordan, Mayor.

La., New Orleans.—Dock Improvements.—T. S. McChesney, secretary of Port Commission, New Orleans, may be addressed relative to constructing three conveyors to facilitate unloading bananas on New Orleans & North-eastern Railroad wharf at Press St. (Recently noted.)

La., Shreveport.—Levee.—Commissioners Caddo Levee District receive bids until February 14 for construction of levee in Caddo parish, on left bank Red River, from Twelve-Mile Bayou to Cross Bayou, distance of 17,500 feet. (Recently mentioned. See "Machinery Wanted.")

La., Shreveport.—Levee.—Board of Commissioners, Caddo Levee District, S. A. Dickson, president, will receive bids until February 14 for constructing (recently noted) new levee in Caddo parish, Red River, left bank; from Twelve-Mile Bayou to Cross Bayou; length 17,500 feet; contents 225,000 cubic yards; information, etc., may be had on application to Board of State Engineers, New Orleans, La., or S. A. Dickson, president; Walter H. Hoffman, engineer in charge. (See "Machinery Wanted.")

Mo., Waverly.—Revetment.—Government will construct 13,000 linear feet revetment on Missouri River; Major E. H. Schulz, Kansas City, Mo., will receive bids until March 4. (See "Machinery Wanted.")

Tex., Dallas.—Natatorium.—Lake Cliff Park Co., Charles A. Mangold, general manager, will construct open-air natatorium at Lake Cliff to be used exclusively for boating; B. J. Harper has contract to drill artesian well; will also construct dam and waterfall, bath-houses, etc.; cost about \$30,000.

Tex., Port Arkansas—Dock, etc.—Texas Channel & Dock Co. awarded contract for construction of 900-foot wharf, dock and warehouse on Harbor Island; fireproof concrete construction; total cost, \$108,000.

Tex., Texas City—Pier.—Texas City Transportation Co. is reported to expend \$2,000,000 for improvements to include erection of pier, four warehouses, etc. (See "Warehouses.")

Va., New Point—Wharf, etc.—New Point Development Corporation incorporated with \$10,000 capital stock; will build wharf, etc.; W. C. Handy, president; L. G. Burroughs, vice-president; J. E. Davis, secretary; W. A. Snow, treasurer.

Va., Norfolk—Bulkhead.—J. F. Benson, civil engineer, 701 Paul-Gale-Greenwood Bldg., Norfolk, Va., will receive bids until noon March 1 for constructing bulkhead around and filling certain property of River Front Realty Corporation in Norfolk county, Virginia; cost \$30,000. (See "Machinery Wanted.")

MISCELLANEOUS ENTERPRISES

Ala., Birmingham—Hardware.—Robertson Hardware Co. incorporated with \$10,000 capital stock; Charles L. Robertson, president; E. P. Griswold, secretary-treasurer.

Ala., Birmingham—Publishing.—Birmingham Courier Publishing Co. incorporated with \$200 capital stock; Emil Lesser, president; J. H. Hiltnerman, vice-president; Max Karpeles, secretary-treasurer.

Ala., Birmingham—Contracting.—Braune Contracting Co. incorporated with \$25,000 capital stock by Gustave M. Braune of Birmingham, B. H. Hardwig and T. A. Jemison of Columbus, Ga.

Fla., Tampa—Window Cleaning.—Tampa Window Cleaning Co. incorporated with \$3000 capital stock; Ernest Erdman, president; Adolph Erdman, treasurer; George S. Stuart, secretary and general manager.

Ga., Atlanta—Plumbing, etc.—Jennings-Gresham Company incorporated with \$25,000 capital stock by J. H. Jennings, V. R. Gresham and J. S. Warmack; plumbing and steam heating.

Ga., Macon—Printing.—Walter Dannenberg and I. Block awarded contract to W. J. Beeland to erect printing plant to be occupied by J. W. Burke Company; cost \$20,000; cost of machinery (purchased) \$10,000. (Recently noted.)

Ky., Adairville—Hardware.—Simons-McPherson Hardware Co. incorporated with \$5000 capital stock by W. P. Simons, M. W. McPherson and W. G. Snider.

Ky., Hopkinsville—Printing.—E. W. Clark & Co. incorporated with \$15,000 capital stock by E. W. Clark, I. S. Ferguson and Mrs. E. W. Clark.

Ky., Paducah—Ferry.—Paducah & Illinois Ferry Co. increased capital stock from \$25,000 to \$40,000.

La., New Orleans—Wire Binding and Tying. Williams Wire Binding & Tying Co. incorporated with \$30,000 capital stock; William H. Bodinger, president; Dick Williams, vice-president; Adam Lorch, Jr., secretary-treasurer.

Md., Baltimore—Mantels and Tiles.—City Mantel & Tile Co., 354 N. Gay St., incorporated with \$5000 capital stock by William J. Harker, Edwin A. Colbert and George A. Solter.

Md., Baltimore—Plumbing.—James B. Lucas & Co., 505 St. Paul St., incorporated by J. Edward Lucas, William H. German and others; continue present company.

Md., Baltimore—Timber Treating.—Illingswood Resonate Timber Co., 414 Continental Bldg., will establish on river front plant for chemical treatment of lumber for railroad ties, telegraph poles, etc.

Md., Baltimore—Plastering and Cementing. Daniel S. Shaffer Company incorporated with \$10,000 capital stock by Daniel S. Shaffer, Milton C. Davis and Harry A. Loane, all of 15 E. Fayette St.

Md., Baltimore—Laundry.—J. M. Langrall, 26 N. Patterson Park Ave., rented warehouse at 1429-1435 Fairmount Ave. and will establish laundry.

Miss., Horn Lake—Abattoir.—Southern Packing & Produce Co., 505 Tennessee Trust Bldg., Memphis, Tenn., will install ide plant and abattoir. (See "Ice and Cold-Storage Plants.")

Miss., Vicksburg—Dyers and Cleaners.—Modern Cleaners and Dyers, South St., near Washington St., awarded contract to H. H. Davis, Vicksburg, to erect building; 27x50 feet; cost \$3500; cost of machinery (purchased), \$3000.

Md., Elkton—Publishing.—Thomas J. Murray of Elkton, David Armstrong (Mayor), Port Deposit, Md., and others propose in-

corporation of Maryland Democrat to publish newspaper.

Md., Glenarm—Grain Elevator.—P. Hartley's Sons will incorporate and build grain elevator and warehouse; recently remodeled meal mills.

Miss., Meridian—Laundry.—R. D. Emmons will build laundry; cost, with equipment, about \$10,000.

Miss., Vicksburg—Company will be incorporated to establish stock yard; capital stock about \$10,000; temporary officers are S. R. Hughes, president; Philip H. Feld, vice-president; George Williamson, financial secretary; J. R. Perry, corresponding secretary. (Recently mentioned.)

Mo., Kansas City—Laundry.—Winter Bro.'s Laundry Co. incorporated with \$15,000 capital stock by A. E. Winter, W. C. Willis, D. T. Winter and F. A. Haas.

Mo., St. Joseph—Publishing.—Foss Publishing Co. incorporated with \$6000 capital stock by F. H. Foss, C. H. Musgrove and Frank C. Martin.

Mo., St. Louis—Welding, Plumbing, etc.—Simon-De Vine Welding Co. incorporated with \$5000 capital stock by Alfred Simon, R. D. Mills and R. S. Mills.

N. C., Bryson City—Electrical Supplies.—Wilhide & Thomas contemplate establishment of electrical supply house.

N. C., Charlotte—Bottling.—W. Gould Brokaw of New York will establish bottling plant for mineral water. (See "Land Developments.")

N. C., Charlotte—Cotton, Wool, etc.—The Howell Company incorporated with \$24,000 capital stock by G. A. Howell, S. W. Howell and Brevard Nixon to deal in cotton wool, textile waste, etc.; main office at 510 W. 5th St.

N. C., Winston-Salem—Builders' Supplies.—R. R. Clinard, 156 W. 4th St., is interested in establishment of wholesale builders' supply house. (See "Machinery Wanted.")

Okla., Boswell—Publishing.—Submarine Publishing Co. incorporated by P. M. Clark, William Stingley and R. D. Fosters.

Okla., Bartlesville—Hardware.—Mendell Hardware Co. incorporated with \$30,000 capital stock by Wayne Mendell, Orlin Weaver and T. L. Ensch.

Tenn., Nashville—Gum Machines, etc.—Tennessee Vending Co. incorporated with \$5000 capital stock by Allen Brown, J. W. N. Lee, Don Campbell and E. J. Hamilton.

Tenn., Nashville—W. H. Labb of Chicago purchased Buena Vista Springs property, comprising 12 acres; will establish amusement resort; amusement features to include band-stand, fun palace 100x130 feet, racing coaster, etc.

Tenn., Nashville—Printing.—Brandau-Craig-Dickerson Co. organized; purchased plant of Standard Printing Co. at 309 Fifth Ave. and will enlarge; propose to erect building; A. G. Brandau, president; W. E. Craig, vice-president; C. B. Dickerson, secretary-treasurer.

Tenn., Shelbyville—Grain.—Cunningham-Evans Grain Co. incorporated with \$10,000 capital stock by N. P. W. G. and G. P. Evans, J. H. and T. G. Cunningham and J. D. Hutton.

Tenn., Trenton—Hardware.—Cooper-Nelson Hardware Co. incorporated with \$16,000 capital stock by G. B. Cooper, Harris J. Nelson, J. B. Cooper, T. N. Nelson and W. I. Bradford.

Tex., Dallas—Bridges.—Texas Bridge Co. incorporated with \$50,000 capital stock by M. S. Hasle, Jr., I. Frenkel and L. S. Leversedge.

Va., La Crosse—Hardware.—La Crosse Hardware Co. incorporated with \$25,000 capital stock; S. J. Moseley, president; J. W. Matthews, vice-president; C. F. Northington, secretary.

Tex., Tyler—Distributing Plant.—Magnolia Petroleum Co., John Sealy, president, Galveston, ex., will erect various buildings, including warehouses, house tank service, barns and business offices.

Va., Danville—Printing Plant.—Boatwright Bros. are having plans prepared by Godfrey Pettit of Danville for printing plant; four stories; 25x156 feet; mill construction; fireproof. (Recently mentioned.)

Va., La Crosse—Hardware.—La Crosse Hardware Co. incorporated with \$25,000 capital stock; S. J. Moseley, president; J. W. Matthews, vice-president; O. F. Northington, secretary.

W. Va., Bluefield—Publishing.—Frith Publishing Co. incorporated with \$5000 capital stock by W. O. Frith, William E. Ross, D. R. French, O. E. St. Clair and John D. French.

W. Va., Huntington—Ferry.—Gwinn Sev-

enth Street Ferry incorporated with \$25,000 capital stock by D. B. Gwinn, Paul W. Scott, W. D. Keister, Henry Simms and H. T. Lovett to operate ferry across Ohio River.

MISCELLANEOUS FACTORIES

Ala., Birmingham—Bottling.—Wicola Company incorporated with \$100,000 capital stock by A. B. Lovelace, W. L. Davis and F. W. Dixon.

Ala., Birmingham—Bakery.—Southern Baking Co. incorporated with \$3000 capital stock; Oscar Reinhardt, president and treasurer; D. L. Stall, vice-president; P. N. Miller, Jr., secretary; will occupy rented building.

Ala., Corey—Tar Distilling Plant.—Barrett Manufacturing Co., W. A. Forman, assistant general manufacturing manager, 17 Battery Pl., New York, advises Manufacturers Record that previously-described plant will be designed and built by company's engineering department; all contracts to be let and construction operations controlled from New York office; estimated cost of plant, \$250,000; will manufacture principally coal-tar pitch, creosote oil and roofing and paving materials; use water-tube boilers; stills designed by company; main mill building, 300x400 feet; 31-acre site.

Ala., Opelika—Gas.—M. L. Wilson, president of Alabama Oil & Guano Co., is interested in proposed establishment of gas plant. (See "Machinery Wanted.")

Ark., Paragould—Hickson-Rogers Manufacturing Co. incorporated with \$15,000 capital stock by J. C. Hickson, A. L. Hickson, A. L. Borneman, Louis Rogers and others.

Fla., Jacksonville—Chemicals.—Jacksonville Chemical Co. incorporated with \$50,000 capital stock by William S. Jordan, Frank Cassidy, W. W. Lloyd, H. P. Hammond and Robert S. Butcher.

Ga., Albany—Gas.—City awarded contract to Empire Gas Co. of New York at \$50,400 to construct water-gas system; about 12 miles mains; R. J. Edgerly, City Engineer. (Recently mentioned.)

Ga., Athens—Marble.—Bell Bros. Marble Co., A. B. Bell, president, will install machinery.

Ga., Atlanta—Syrup Refinery.—Garner-Blakeley Company, Bainbridge, Ga., has plans by Lodowick J. Hill, Jr., Atlanta National Bank Bldg., Atlanta, to remodel building at Benjamin St. and Murphy Ave.; two stories and basement; 72x60 feet; brick; day labor.

Ga., Atlanta—Bottling.—Coca-Cola Bottling Co. of Des Moines incorporated with \$100,000 capital stock by W. G. Keen, Atlanta; Joel A. Smith, Jeffersonville, Ga.; Luke G. Johnson, Gainesville, Ga., and Edgar T. Lasseter, Macon, Ga.

Ga., Atlanta—Extracts.—Southern Elixir & Extract Co. incorporated with \$30,000 capital stock by H. A. Pitner and B. B. Braswell.

Ga., Fitzgerald—Marble.—Cherokee Marble Works incorporated with \$5000 capital stock by S. C. Brink of Fitzgerald and W. H. Woodbury of Asheville, N. C.

Ga., Waycross—Wood Pulp.—Alexander K. Seasons will, it is reported, organize company to manufacture wood pulp for paper manufacture.

Ky., Ashland—Tannery.—John D. Moore of Moore Construction Co., Charleston, W. Va. (recently noted as receiving construction contract), states that new buildings of Ashland Leather Co. will include 50x150-foot roller-house, 50x153-foot bleach-house, 32x50-foot structure and 72x376 yardhouse, all two stories; also one-story 32x36-foot engine-room and 125x164-foot rocker vat-house; cost \$100,000; plans by B. W. Seymour, Chicago, Ill. (Other details previously given.)

Ky., Glasgow—Tobacco.—Samson Tobacco Co. increased capital stock from \$20,000 to \$100,000.

Ky., Lexington—Tobacco.—Luther Stivers is promoting erection of tobacco factory. (See "Warehouses.")

Ky., Louisville—Dyeing, etc.—Associated Clothing & Dyeing Co. incorporated with \$3000 capital stock by M. A. Schneider, Leon Scherm and others.

Ky., Maysville—Distillery.—D. A. Emmitt of Maysville and George L. Emmitt, Terre Haute, Ind., will erect distillery.

Md., Baltimore—Ice-cream.—L. Manuel Hender, 5 Lloyd St., is preparing plans for ice-cream factory and cold-storage plant; building 100x200 feet; two stories; refrigerating machinery will be furnished and installed by Wegner Machine Co. of Buffalo, N. Y., which is preparing plans.

Md., Baltimore—Skirts.—Charles Land, 1010 E. Fayette St., awarded contract to P. H. Guttman, 2418 Federal St., Baltimore, to erect addition to factory at 1010 E. Fayette

St.; three stories; 37x34 feet; brick; tin roof; steam heat; cost \$3300; plans by Callis & Callis, 2000 St. Paul St., Baltimore.

Md., Baltimore—Electrical Fixtures.—W. H. Rosenfeld Electric Co., corner Lombard, Liberty and Howard Sts., is completing installation of machinery and materials for proposed fixture-manufacturing plant. (See "Machinery Wanted.")

Md., Baltimore—Ice-cream.—Maryland Ice-Cream & Fruit Products Co. awarded contract to Consolidated Engineering Co., 101 Emerson Bldg., Baltimore, to remodel factory building in rear of 17-19 E. Pratt St. and to remodel buildings now on site; new building to be three stories, brick, 29x35 feet; immediate capacity of plant, 30,000 gallons ice-cream per annum; cost of new building and improvement work, about \$40,000; cost of machinery, about \$75,000; plans by Mottu & White, 322 N. Charles St.

Miss., Moss Point—Paper.—Southern Paper Co., J. L. Dantzer, president, has 90 acres of land as site for plant; awarded contract for two-story office building and 30x136-foot machinery-room of brick and concrete; now has bids for mill 100x800 feet, two and three stories high, of brick, with cement foundation; will distill turpentine, etc., from sawdust; treat, bleach and grind residue for pulp, then manufacturing paper, pasteboard, etc.; engineers in charge of construction, Joseph H. Wallace & Co., 5 Beekman St., New York. (Recently reported organized, etc.)

Mo., Joplin—Motion Picture Films.—Neal Anderson, A. L. Chalkins and Mahlon Caffee, Carthage, Mo., organized company to manufacture moving-picture films; offices in Griggs Bldg. on Main St.

Mo., Springfield—Ties.—Smalley Tie Co. incorporated with \$5000 capital stock by P. H. Smalley, J. E. Smalley and Eichel Smalley.

Mo., St. Louis—Disinfectants, etc.—National Products Co. incorporated with \$5000 capital stock by Herman G. Ludwig, Minnie C. Metz and Otto A. Metz.

Mo., St. Louis—Paper Cups and Specialties. Sanitary Paper Cup & Specialty Co. incorporated with \$40,000 capital stock by Aaron M. Pareira, Sidney L. Wilson, P. H. Baker, W. V. Scholz and others.

Mo., St. Louis—Ice-cream and Candy.—Right Ice-Cream & Candy Manufacturing Co. incorporated with \$5000 capital stock by William D. Power, Everett K. Sherman, Robert F. James and A. K. Puckett.

Mo., St. Louis—Paint and Oil.—Markay Manufacturing Co. incorporated with \$5000 capital stock by A. H. Buser, E. M. Buser and Charles F. McKay.

N. C., Burlington—Gas.—Kummerl & Co., Philadelphia, Pa., are considering establishment of gas plant.

N. C., Canton—Wood Pulp.—J. Q. Barker and H. R. Campbell of Andrews, N. C., are reported as planning to build wood-pulp mill.

N. C., Charlotte—Bagging.—Charlotte Bagging Co. incorporated with \$100,000 capital stock by A. L. Smith, H. L. Sanders, E. S. Hoggard and H. A. Cook.

N. C., Greensboro—Liniment.—Goose Grease Co., Lee H. Battle, president, increased capital stock from \$100,000 to \$200,000; continues operation of established plant.

N. C., Henderson—Gas.—Henderson Gas Co. incorporated with \$200,000 capital stock by J. C. Kittrell of Henderson, A. M. Worstall and W. M. Keumerie, Philadelphia, Pa.; construction by Keumerie & Company, Real Estate Trust Bldg., Philadelphia.

N. C., Rocky Mount—Bakery.—Rocky Mount Bakery Co. organized with \$25,000 capital stock by R. B. Davis, T. L. Bland, S. S. Toler, F. S. Gardner and others; will have building erected.

Okla., Tulsa—Torpedoes.—Central Torpedo Co. incorporated with \$30,000 capital stock by John Longabaugh of Muskogee, J. F. Bradford and R. P. Barton of Tulsa, Okla., and others.

Okla., Tulsa—Nut Locks.—M. H. Bell wires Manufacturers Record that proposed nut-lock factory has not taken definite form and that J. S. Bell can be addressed for information. (Recently mentioned.)

S. C., Columbia—Motion-picture Films.—E. B. and A. L. Rawls will install motion film equipment.

Tenn., Chattanooga—Trunks.—Chattanooga Trunk Co. incorporated with \$4000 capital stock by C. N. and A. C. Willingham, Z. H. Taylor, F. H. Taylor and R. L. Ely.

Tenn., Chattanooga—Mechanics' Tools, etc. W. H. Colby incorporated with \$25,000 capital stock by W. H. and S. B. Colby, A. M. January, E. B. Clark and J. Forwalter.

Tenn., Chattanooga—Trucks.—Chattanooga Truck Co. incorporated with \$4000 capital

stock by C. M. Willingham, A. C. Willingham, Z. H. Taylor and R. L. Ely.

Tenn., Columbia.—Monuments.—McNeal Monument Co. (recently noted to increase capital stock to \$20,000) will erect plant; 108x30 feet; ordinary construction; cost \$1250; no bids; install traveling crane. (See "Machinery Wanted.")

Tenn., Fayetteville.—Tannery.—Fayetteville Tanning & Manufacturing Co. incorporated with \$25,000 capital stock by D. S. Sherrill, B. E. Holman, W. L. Hatcher, E. K. Blair and others.

Tenn., Lexington.—Bottling.—Coca-Cola Bottling Works incorporated with \$4000 capital stock by J. W. Enochs, T. A. Enochs, M. L. Orr, W. T. Watson and H. E. Graper; acquires Lexington Bottling Works.

Tenn., Nashville.—Bakery.—Capitol Baking Co. incorporated with \$5000 capital stock by J. F. Schott, Lewis Huggins, V. J. Alexander, H. A. Tenbrunsel and R. B. C. Howell.

Tex., Bay City.—Ice Cream, etc.—Bay City Ice Cream & Creamery Co., A. G. Jolly, president, will install gas engine, power freezer and equipment for plant with daily capacity of 100 gallons ice cream and 50 or 75 pounds butter.

Tex., Dallas.—Beverage.—Pepsin Punch Co. increased capital stock from \$15,000 to \$25,000.

Tex., Kingsville.—Creamery.—Commercial Club is promoting establishment of creamery.

Tex., Pecos.—Beet Sugar.—L. B. Wilhelm, Boulder, Colo., has arranged with Pecos Commercial Club to visit Lower Pecos Valley for purpose of locating sugar beet factory; Mr. Wilhelm represents American Sugar Refining & Manufacturing Co. of Salt Lake City and Denver.

Tex., Tyler.—Overalls.—Tyler Overall Manufacturing Co. purchased site 75x230 feet on which to erect brick building to be equipped as overall factory.

Tex., Waco.—Glass Bottles.—William Schoberth, Peru, Kans., will, it is reported, establish glass-bottle factory.

Va., Bristol.—Cattle Guards.—Kent Oscillating Cattle Guard Corporation chartered with \$50,000 capital stock; V. E. Kent, president; William W. Bellew, vice-president; James A. Martin, secretary-treasurer; all of Johnson City, Tenn.; will establish plant; location not determined; erect no building.

Va., Lynchburg.—Medicines.—Wheeler Chemical Co., J. B. Ogden, vice-president, McKinley Ave. Park (previously noted incorporated with \$5000 capital stock), will manufacture medicines.

Va., Lynchburg.—Mattresses.—National Mattress Co. incorporated with \$25,000 capital stock; will install machinery for manufacturing mattresses; for present will occupy building formerly used by Lynchburg Lounge Co.; machinery will include cotton-felt pickers, filling and sewing machines, etc.; W. T. McNamara, Jr., president and general manager; T. E. Murrell, secretary-treasurer. (See "Machinery Wanted.")

Va., Newport News.—Establishment of shell-button factory is contemplated. B. J. Shaffer can give information.

W. Va., Jane Lew.—Brooms.—Board of Trade, Geo. B. Waggoner, treasurer, contemplates establishment of broom factory. (See "Machinery Wanted.")

W. Va., Moundsville.—Glass.—Fostoria Glass Co. has arranged to construct additional buildings recently announced; plans by C. D. McCarty of Wheeling, W. Va.; two-story 80x220-foot and four-story 100x100-foot structures, of mill construction, costing \$65,000; will install 14-pot furnace; report states buildings, machinery, etc., will cost about \$150,000. (Recently noted increasing capital stock from \$500,000 to \$1,000,000.)

MOTORS AND GARAGES

D. C., Washington.—Marshall & Parsons (H. W. Marshall and F. C. Parsons) will establish garage and automobile salesrooms at 1315 H St. N. W.

D. C., Washington.—William H. Wilson, 1515 10th St., will not erect garage, etc., as recently reported. (See "Dwellings.")

Ga., Atlanta.—Mrs. John W. Akin will erect automobile show-room building and apartment-house at Peachtree St. and North Ave. (See "Apartment-Houses.")

Md., Baltimore.—Everett Auto Co. incorporated with \$60,000 capital stock by Clyde E. Hunter, 1534 Mt. Royal Ave.; Bernard H. McGinn, 505 E. 20th St., and Francis E. Magee.

Md., Baltimore.—Peter Heffner, 203 Frederick Ave., awarded contract to James E. Phelps, 2140 W. Baltimore St., Baltimore, to erect warehouse and garage. (See Contracts Awarded, "Warehouses.")

Md., Baltimore.—Peter Heffner awarded contract to James E. Phelps, 1932 Riggs Ave.,

Baltimore, to erect garage and storage building at 203-205 Frederick Ave.; brick; two stories; 28x52 feet; tin roof; plans by F. E. Beall, 213 St. Paul St., Baltimore.

Mo., St. Louis.—St. Louis Alco Automobile Co. incorporated with \$10,000 capital stock by Barton R. Ford, George R. Parsons and Charles E. Darrow.

Mo., St. Louis.—Universal Motor Truck Traction Co. incorporated with \$250,000 capital stock by William H. Taylor, John Beltram and A. R. Shaffer.

N. C., High Point.—High Point Motor Car Co. incorporated with \$25,000 capital stock; will establish garage and repair shop at Commerce and Hamilton Sts.; buildings completed; machinery will include lathe, motor drill press, pump, air tanks, etc.; George Wilson, president; J. E. Kirkman, vice-president; S. L. Davis, secretary-treasurer. (See "Machinery Wanted.")

Okla., Tulsa.—Dowaglac Motor Car Co. of Dowaglac, Mich., has removed to Tulsa and become part of Tulsa Automobile & Manufacturing Co.; will manufacture one-half, one and two-ton trucks; contemplates first deliveries about April 1; M. A. Younkman is president of Tulsa company, J. E. Crosbie vice-president, Schuyler C. French secretary-treasurer.

S. C., Florence.—J. D. Bridges Company will install machine shop equipment and welding apparatus for manufacturing automobile parts and specialties; J. D. Bridges, president; A. J. Whitley, vice-president and treasurer; E. T. Hickey, secretary. (Recently reported incorporated with \$8000 capital stock.)

Tex., Austin.—A. S. Burleson will erect garage on Colorado St.; two stories; cost \$8500.

Tex., Houston.—G. H. Herman will expend \$50,000 to erect garage and apartment-house for G. W. Hawkins Company; 129x150 feet; ordinary construction; contract recently noted awarded to John Stadler, Houston.

Va., Richmond.—Kline Motor Car Co., Jas. A. Kline, general manager, is planning to begin construction of proposed automobile factory; brick; concrete foundation; two buildings, each 600x60 feet; administration building of colonial style; two stories. (Previously reported as having plans prepared for plant.)

W. Va., Petersburg.—M. A. Finn of Perkinson & Finn will erect garage to be occupied by H. L. Smith & Co. (See "Stores.")

RAILWAY SHOPS, TERMINALS, ROUNDHOUSES, ETC.

Ark., Pine Bluff.—St. Louis Southwestern Railway Co., T. S. Berry, superintendent of bridges and building, 1551 Pierce Bldg., St. Louis, Mo., will erect boiler and machine shop to replace burned buildings; 12x320 feet; one story; brick; steel roof trusses and columns; work by company's forces; materials purchased. (Recently noted.)

Md., Cumberland.—Baltimore & Ohio Railroad, F. L. Stuart, chief engineer, Baltimore, Md., will build shops in South Cumberland to cost \$300,000 to \$400,000.

Miss., Laurel.—New Orleans, Mobile & Chicago Railroad, W. F. Owen, general manager, Mobile, Ala., will erect 12-stall roundhouse and 80-foot turntable; fireproof construction; company's force will erect. (Recently noted.)

W. Va., Bluefield.—Norfolk & Western Railway, C. S. Churchill, chief engineer, Roanoke, Va., contemplates building five overhead engine coaling stations to be located in coal fields; concrete and steel construction.

W. Va., Wheeling.—G. O. Nagle, general manager Wheeling Traction Co., states company has not completed details for proposed improvements, to include recently-noted repair shop on the island; unconfirmed reports state \$1,000,000 has been appropriated for improvements.

ROAD AND STREET WORK

Ala., Birmingham.—Jefferson County Board of Revenue awarded contract for macadamizing 1½ miles of road near Wilkes Station.

Ala., Jasper.—Walker county will vote March 12 on \$300,000 bond issue for road construction. Address County Commissioners.

Ala., Helena.—Shelby County Board of Revenue, Columbiana, Ala., ordered construction of road from Helena to Acton, about six miles.

Ark., Fort Smith.—City has \$80,000 available for constructing 33,000 yards of paving and 5000 feet of concrete storm sewer; M. H. Reed, engineer in charge; bids not advertised. (Recently noted.)

Ark., Helena.—Commissioners Paving Dis-

trict No. 6 will receive bids until February 12 for paving streets; district comprises 25 blocks in residential section; E. A. Kingsley, Little Rock, Ark., is engineer; S. S. Faulkner, chairman commissioners. (See "Machinery Wanted.")

Fla., Jacksonville.—Duval County Commissioners awarded contract to George R. Foster, Jr., to pave Mayport Rd. from Atlantic Boulevard to Mayport city limits; Gall L. Barnard, County Engineer. (Call for bids lately noted.)

Ga., Barnesville.—City, J. C. Collier, Mayor, engaged J. B. McCrary Company, Atlanta, Ga., as engineer for street grading and paving recently noted; not ready for bids.

Ga., Baxley.—Empire Construction Co. has contract for one mile concrete sidewalk.

Miss., Greenwood.—City contemplates paving about one and one-half miles of streets. Address The Mayor.

Miss., Vicksburg.—City will vote February 14 on \$100,000 bond issue for street paving. Address The Mayor.

Mo., Kansas City.—J. C. Nichols awarded contract to Frank Ritcherson for about 2½ miles of granite walk and concrete gutter in Country Club Heights; about 125,000 square feet concrete work included in contract.

N. C., Durham.—City will grade Oakwood Ave. and Markham St. and construct culvert under same; about 10,000 yards excavation and 45 yards concrete; bids received until February 5. Address City Clerk. (Recently mentioned. See "Machinery Wanted.")

N. C., Hot Springs.—Hot Springs township will vote on \$40,000 bond issue to build road from Tennessee line through township to connect with central highway. Address County Commissioners.

N. C., La Grange.—Town will vote March 4 on \$30,000 bond issue for street improvements, etc. Address D'Leon M. Fields, Town Clerk. (See "Water-works.")

N. C., Newton.—Catawba county will probably vote about March 15 on \$50,000 bond issue for road improvements. Address County Commissioners. (Recently mentioned.)

N. C., Troy.—Montgomery county postponed election previously reported to be held in January for voting on \$100,000 bond issue for road improvements. Address County Commissioners.

S. C., Orangeburg.—City will receive bids until February 15 for 5800 square yards vitrified brick paving; Fingal C. Black, City Engineer, will soon complete plans and specifications. (Recently mentioned.)

Tenn., Charlotte.—Dickson county will vote February 17 on bond issue for road construction. Address County Commissioners. (Recently mentioned as December 17.)

Tenn., Lawrenceburg.—Lawrence county will vote March 16 on \$300,000 bond issue for road construction. Address County Commissioners.

Tenn., Johnson City.—City awarded contract at \$12,036 to Cleveland Trinidad Paving Co. (main office Cleveland, O.) to pave West Main St., district No. 9.

Tenn., Memphis.—Speedway Land Co., F. W. Faxon & Co., agents, Memphis (recently noted to have let contract to J. L. Nichol for grading and paving in Speedway Terrace) will in about 60 days let additional contract for sidewalk construction. (See "Machinery Wanted.")

Tex., Cleburne.—Precinct No. 1 of Johnson county will vote February 23 on \$300,000 bond issue for road improvements. Address County Commissioners. (Recently mentioned.)

Tex., Celina.—Third road district of Collin county will vote February 10 on \$120,000 bond issue for road construction. Address Commissioners Third Road District of Collin County.

Tex., Dallas.—City will pave Walton St. from Main to Elm St.; bids received until February 9; J. B. Winslett, City Secretary. (See "Machinery Wanted.")

Tex., Groesbeck.—Limestone county will vote February 17 on \$20,000 bond issue for road improvements. Address County Commissioners.

Tex., Houston.—Harris County Commissioners awarded contract to Creosoted Wood Block & Paving Co., Gulfport, Miss., at \$22-34.05 to pave street between Washington Ave. and White Oak Bayou.

Tex., Houston Heights.—City awarded contract to E. J. Overley & Co., Joplin, Mo., at \$114,845.50 to pave Boulevard with brick; Howe & Wise, engineers, 723-723 First National Bank Bldg., Houston, Tex.; D. D. Barker, Mayor, Kalm Bldg., Houston, Tex. (Call for bids lately noted.)

Tex., Bonham.—City will construct 55 blocks of concrete sidewalks. Address The Mayor.

Tex., Teague.—City Council contracted with J. G. Browne, civil engineer, Houston, Tex., to prepare plans and specifications for concrete sidewalks and curbs.

Va., Norfolk.—City contemplates appropriation of \$120,000 for paving in Tenth ward; streets proposed are Pocahontas, Myers and Parker Aves. and 48th and 27th Sts.; W. T. Brooke, City Engineer.

W. Va., Bethany.—Town will vote February 5 on \$4000 bond issue for improvements to streets and sewer system; \$16,000 additional will be available, making total of \$20,000. Address Town Clerk.

SEWER CONSTRUCTION

Ala., Boyles.—Jefferson county will construct sanitary sewer near Boyles; bids received until February 15; L. H. Salter, sanitary engineer. (See "Machinery Wanted.")

Fla., Callahan.—City will vote \$15,000 bond issue for sewer system. Address The Mayor.

Md., Baltimore.—City receives bids until February 14 for laying house connections across footways in Sanitary District No. 14, etc. Sanitary Contract No. 85; Charles England, chairman Sewerage Commission. (See "Machinery Wanted.")

Mo., Hermann.—City is having plans prepared by Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., for sanitary sewers and water-works.

Mo., Springfield.—City retained Alexander Potter, 114 Liberty St., New York, to design and supervise construction of sewage-disposal plants for existing north and south outlet sewers. (Bond issue of \$100,000 previously noted.)

N. C., La Grange.—Town will vote March 4 on \$30,000 bond issue for sewer system, etc. Address D'Leon M. Fields, Town Clerk. (See "Water-works.")

N. C., Winston, P. O. Winston-Salem.—J. N. Ambler, civil engineer, has completed plans for sewerage system for East Winston, comprising about 12 miles of sewer lines; entire system will not be constructed at present, but plans were drawn with view to making future extension harmonize with general system. (Previously mentioned.)

Tenn., St. Elmo.—City will construct sewer system; include 14 miles of 8-inch to 24-inch pipe sewer, sewage-disposal plant, bridge across Chattanooga Creek and 400 linear feet of tunnel; bids received until March 1; H. B. Wilson, Mayor; Cushman-Fairleigh Engineering Co., engineer, 724 James Bldg., Chattanooga, Tenn.; bond issue of \$80,000 previously noted voted. (See "Machinery Wanted.")

Tex., Forney.—City will soon begin construction of sewer system; \$12,000 bond issue sold. Address The Mayor. (Previously mentioned.)

Va., Norfolk.—City contemplates expenditure of \$94,000 for construction of sewers and water mains in Tenth ward; W. T. Brooke, City Engineer.

W. Va., Barboursville.—City awarded contract to Amos Trainer, 2025 Fourth Ave., Huntington, W. Va., at \$10,000 to construct sewer system; 20,000 feet 15-inch to 6-inch pipe; L. W. Leete, 609 Kelley Bldg., Huntington, W. Va., engineer in charge. (Bond issue of \$11,500 recently reported voted.)

W. Va., Bethany.—Town will vote February 5 on \$4000 bond issue for improvements to sewer system and streets; \$16,000 additional will be available, making total of \$20,000. Address Town Clerk.

TELEPHONE SYSTEMS

Ga., Augusta.—Georgia Railroad & Telegraph Co. will be incorporated with \$300,000 capital stock by W. S. Brand, Bryan Cummings, Edward J. Mulheren, Thomas M. Scott and Carleton Hillyer; will construct telegraph system operating between Augusta and Atlanta and Macon.

Md., Centerville.—Farmers & Merchants' Telephone Co. will erect concrete exchange and storage building.

Miss., Washington.—Cumberland Telephone & Telegraph Co. (main office, Nashville, Tenn.) will extend telephone system from Washington to Fenwick; also from Natches to Silgo Plantation, 15 miles.

N. C., King.—Quickstep Telephone Co. will construct telephone line from King to Meadows, with switchboard at Donahua.

Okla., Blackwell.—Lone Tree Telephone Co. incorporated by O. C. Diemer, C. R. Garver and S. E. Williams.

Okla., Gracemont.—Gracemont & Hillsdale Rural Telephone Co. incorporated by John F. Pope, W. C. Drake and W. V. McFarland.

Tenn., Chattanooga.—Western Union Telegraph Co. (main office 135 Broadway, New York) will remodel office building; reported

to install new alarm system; cost about \$500.

Tenn., Nashville.—Cumberland Telephone & Telegraph Co. authorized bond issue of \$15,000,000 for extensions and improvements throughout South. W. T. Gentry, president, Atlanta, Ga., wires to Manufacturers Record: "Proposed bond issue to retire securities and provide for extensions incident to growth."

Tex., Castrolville.—Medina & San Geronimo Telephone Co. incorporated with \$5000 capital stock by H. F. Wurzbach, Ed. Seekatz and Louis Worsbach.

Tex., Goldthwaite.—Brown Telephone & Telephone Co. incorporated with \$15,000 capital stock by M. L. Brown, C. B. Mohler, E. D. Bralley and others.

TEXTILE MILLS

Ala., Uniontown.—Cotton Yarns.—Canebrake Cotton Mills organized with S. T. Whitfield president and A. L. Morgan secretary; capital stock \$80,000; succeeds Ella White Cotton Mills recently purchased by Mr. Morgan and associates; equipment, 10,000 spindles, etc.; now overhauling plant. (Recently reported incorporated.)

N. C., Charlotte.—Cotton Products.—Piedmont Commission Co. incorporated with \$100,000 capital stock by J. H. Weddington, F. D. Alexander and others.

N. C., Charlotte.—Cotton Cloth.—Thayer Manufacturing Co. permanently organized with J. T. Lincoln of Fall River, Mass., as president; treasurer, architect and engineer in charge, O. A. Robbins of Charlotte; preparing plans and specifications for 25,000-spindle and 500-loom mill; manufacture plain specialties and later fine-grade specialties from combed Egyptian cotton; building for carding and spinning probably two stories high with weave shed adjoining; capitalization \$500,000. (Recently reported as organizing, etc.)

N. C., Newton.—Cotton Yarns.—W. H. Shuford of Hickory, N. C., purchased mill building and will install 5000 spindles.

S. C., Chester.—Ginghams.—Springstein Mills will install 100 box looms; awarded contract.

Va., Suffolk.—Hosiery.—Carr Knitting Mills increased capital stock from \$17,000 to \$25,000 and will add new machinery.

WATER-POWER DEVELOPMENTS

Ala., Montgomery.—Charles H. Baker of New York, president of Alabama Interstate Power Co., and active in management of Birmingham, Montgomery & Gulf Power Co. (developing water-power of Tallapoosa River for transmitting electricity to Montgomery, Birmingham and other cities), refers to his company's plans in part as follows: "We have interested London bankers so that ample funds are at our command for development of Tallapoosa and other powers and for collateral enterprises to furnish large market to water-power company. Large financial interests in this project are held by J. S. Pinckard, H. C. Jones and Massey Wilson of this city. We anticipate that building of high dam at Cherokee Bluff above Tallapoosa will begin as soon as river conditions permit, probably within 60 days. Concrete dam at Cherokee Bluff will raise river level 120 feet, causing impounded water to form storage lake of over 30 square miles. Cost of this development when completed will be about \$3,000,000; will afford 30,000 horse-power." (Recently mentioned.)

S. C., Lockhart.—Lockhart Power Co., with \$100,000 capital stock and privilege of increasing to \$500,000, will be organized by H. L. Hatch, W. S. Montgomery and Alfred Moore.

Tenn., Shelbyville.—Duck River Power Co. increased capital stock from \$35,000 to \$100,000; furnishes electricity for lightning and power at Shelbyville and Wartrace.

WATER-WORKS

Ala., Decatur.—Special correspondent wires Manufacturers Record that "W. C. Hamilton, Birmingham, Ala., and associates have taken over Decatur water-works system; consideration \$500,000." Confirming report of purchase, Mr. Hamilton writes to Manufacturers Record: "We do not care to give out the amount of the purchase price. More than \$400,000 were expended in the entire construction."

Ala., Huntsville.—City contemplates construction of pumping station; Edgar B. Kay, professor University of Alabama, Tuscaloosa, Ala., is advising with City Commissioners.

Ga., Baxley.—Empire Construction Co. has contract for concrete reservoir.

Ga., Meigs.—City, H. E. Wilkes, Mayor, has

not yet made estimates or engaged engineer, but if bond election (recently noted for February 27) is carried will probably open bids about April 1 on water and light plant. (See "Electric Plants.")

Ky., Beren.—G. D. Holliday is promoting construction of water-works.

La., Vidalia.—City will construct water-works; awarded contract to Layne & Bowler, Houston, Tex., to bore 10-inch well; guarantee 200,000 gallons water per day.

Md., Baltimore.—City receives new bids until February 14 for furnishing and installing complete system of underground feeders from high-pressure pumping station, South St., to courthouse, city hall and two city hall annexes; C. E. Stubbs, building inspector. (Recently mentioned under "Electric Plants." See "Machinery Wanted.")

Md., Hagerstown.—Legislature authorized city officials to purchase Washington County Water Co.'s water system, comprising two reservoirs on mountain at Smithsburg and Edgemont, respectively, storage reservoir near Hagerstown, etc. Dr. J. McPherson Scott, Mayor. (Recently mentioned.)

Mo., Hermann.—City is having plans prepared by Burns & McDonnell, Scarritt Bldg., Kansas City, Mo., for water-works and sanitary sewers.

Mo., St. Charles.—City awarded contract to Bull & Neberle of St. Charles at \$20,144 to construct reinforced concrete reservoir; 5696 cubic yards grading and subgrading; 2236 cubic yards reinforced concrete; 160 linear feet cast-iron pipe; John Schulz of St. Charles has contract at \$894 for piping.

Mo., St. Joseph.—St. Joseph Water Co. will petition Public Utilities Board for authority to issue \$250,000 of bonds for proposed improvements to system.

Mo., Tarkio.—City will vote on \$27,000 bond issue for purchase of water-works and electric-light plant of Tarkio Electric & Water Co.; at same time city will also vote on renewal of contract with company for electrical and water service. Address The Mayor.

N. C., Charlotte.—City awarded contract to Johnson, Porter & Peck of Charlotte at \$31,359.25 to construct reservoir; capacity 65,000 gallons; 5500 cubic yards embankment; 6000 square yards 6-inch concrete slope; 600 cubic yards core wall. Gilbert C. White of Charlotte is engineer. (Call for bids lately noted.)

N. C., Charlotte.—Board of Water Commissioners awarded contract to Johnson, Porter & Peck, Charlotte, at \$31,359 to construct reservoir; capacity, 65,000 gallons; Gilbert G. White, Charlotte, engineer. (Recently noted to receive bids until February 1.)

N. C., La Grange.—Town will vote March 4 on \$30,000 bond issue for water-works, sewer system, electric-light plant, street improvements, town hall and market-house. Address D'Leon M. Fields, Town Clerk.

Okla., Dustin.—City awarded contract to J. S. Terry Construction Co., Poteau, Okla., at \$20,905 to construct water-works; E. W. Gantt, engineer in charge. (Recently mentioned.)

Okla., Oklahoma City.—City will vote February 12 on \$100,000 bond issue for improving water-works and defraying cost of preliminary investigation by engineers of possible water sources. Address The Mayor. (Recently mentioned.)

S. C., Columbia.—City's water-works plans include 12x100x200 concrete coagulating basin for 10,000-gallon supply; mixing tanks and machinery; also 24x100-foot operating and warehouse; date of opening construction and machinery bids not decided; F. C. Wyse, engineer-superintendent; W. H. Gibbs, Mayor. (Bids for repairs to pumping plant, etc., recently noted to be received February 14.)

S. C., Yorkville.—City voted bond issue for extension of water-works. Address The Mayor.

Tenn., Johnson City.—City awarded contract to F. R. Stone & Co., Oklahoma City, Okla., at \$42,215.75 to lay pipe line; to Oliver & Hill, Maryville, Tenn., at \$16,177.35 to build 4,000-gallon reservoir, and to Flynn & Co., Chattanooga, Tenn., at \$1000 for intake; also awarded contracts for furnishing cast-iron pipe, gate valves, manholes, etc.; total amount of contracts awarded \$160,000; water is to be piped from Big Blue Springs in Union county, 13 miles from city, said to have daily flow of 11,000,000 gallons; J. B. McCrary Company, Third National Bank Bldg., Atlanta, Ga., consulting engineer; William B. Poudler, recorder. (Call for bids lately noted.)

Tex., San Antonio.—City engaged Alexander Potter, 114 Liberty St., New York, to appraise existing water-works plant and pre-

pare plans for extension and rehabilitation; also to prepare new contract with water company; these to be embodied in report, with plans, to be presented June 1; present water contract between city and San Antonio Water Supply Co. (owned by Belgian capitalists) expires in June. (Recently mentioned.)

Tex., San Juan.—San Juan Water Co. incorporated with \$10,000 capital stock by Ralph R. Langley, J. D. Freeman and Eugene Kean.

Tex., Winters.—City contemplates constructing water-works; Ira Hall of Clingman-Hall Machinery Co., Plainview, Tex., will submit estimates of cost.

Va., Norfolk.—City contemplates expenditure of \$34,000 for construction of water mains and sewers in Tenth Ward; W. T. Brooke, City Engineer.

W. Va., Barboursville.—City granted franchise to Blair P. Wilson, George J. McComas and Amos Trainer to construct water-works.

WOODWORKING PLANTS

Ala., Hartselle.—Staves.—Hartselle Stave & Heading Co. has acquired Hartselle Coopers Co.'s plant and will double capacity; now manufactures 40,000 staves per week.

Ark., Caddo Gap.—Drykiln.—C. D. Gibbs Stave Co. will rebuild drykiln recently burned; probably of concrete.

Ark., Arkansas City.—Shingles.—De Soto Shingle Co., C. G. Price, president, Little Rock, Ark., recently noted incorporated (under "Miscellaneous Factories") with \$10,000 capital stock, succeeds De Soto Co., partnership; plant equipped; C. G. Price, president, Little Rock, Ark.; A. J. Brothers, vice-president and manager; C. R. Ledbetter, secretary-treasurer.

Ark., Jonesboro.—Boxes.—F. J. Schmuck will organize company with \$50,000 capital stock to manufacture boxes; will purchase box factory No. 2 of Chapman-Sewey Lumber Co.

Ga., Flowery Branch.—Chairs.—Georgia Chair Co. incorporated with \$15,000 capital stock by Forrest Additon, F. T. Davie, J. A. Chastain, M. J. Charles and others to establish plant with daily capacity of 1200 chairs; will erect 60x200-foot and 60x150-foot two-story main buildings of ordinary construction; install equipment; Forrest Additon, manager. (See "Machinery Wanted.")

Ga., Savannah.—Cooperage.—Seaboard Cooperage Co. incorporated with \$100,000 capital stock by Wilmer H. Crawford, Albert C. Bacon and E. S. Trosdal.

Md., Baltimore.—Mantels.—Charles J. F. Steiner Mantel Co., 11th and Monument Sts., increased capital stock from \$20,000 to \$30,000; will build one-story 80x180-foot addition; acts as its own builder.

Md., Baltimore.—Caskets.—Independent Casket Co., 603 N. Calvert St., increased capital stock from \$10,000 to \$50,000.

N. C., Raeford.—Furniture.—Raeford Furniture Co. incorporated with \$25,000 capital stock by W. E. Freeman, J. A. McDiarmid, C. R. Freeman and others.

N. C., St. Pauls.—Novelties.—Opie Odum will rebuild novelty works recently burned.

S. C., Cheraw.—Coffins.—Cheraw Coffin Co. will rebuild burned factory.

Tenn., Elizabethton.—Chairs.—Empire Chair Co. will erect 125x50-foot two-story addition to finishing and storage building.

Tenn., Greeneville.—Chairs.—Greeneville Chair Co. will erect factory.

Tex., Denison.—Boxes, etc.—Denison Box & Manufacturing Co. will establish plant to manufacture boxes, crates and baskets; main building, one story high, 100x125 feet, is in course of erection; other structures will include office building, stables and warehouses; ordered machinery costing \$5000; capacity, one carload finished product daily; F. E. Shaffer and C. E. Roberts organized company.

Va., Port Norfolk, P. O. at Portsmouth.—Barrels, etc.—Planters' Manufacturing Co. will rebuild plant (recently burned) for manufacturing barrels and truck packages.

W. Va., Morgantown.—Furniture.—J. F. Loving Furniture Co. incorporated with \$25,000 capital stock by J. F. Loving, J. L. Hatfield and W. P. Grow of Morgantown, S. P. Jones, Richmond, Va., and E. A. Snead, Clifton Forge, Va.

BURNED

Ala., Autaugaville.—White-Water Lumber Co.'s drykilns, planers and lumber; loss about \$25,500.

Ala., Cullman.—Reese Rascoe's residence.

Ala., Hanceville.—Methodist parsonage. Address The Pastor of Methodist Church.

Ark., Caddo Gap.—C. D. Gibbs Stave Co.'s drykiln; loss about \$5000.

Ark., Camden.—Matthews Stave Co.'s office; W. C. White's commissary.

Ark., Little Rock.—J. W. Waugh's residence at 3d and Spring Sts.; loss \$3000.

Fla., Jacksonville.—South Atlantic Blow Pipe & Sheet Metal Co. states plant was incorrectly reported burned in recent fire.

Fla., Pensacola.—The Fair, owned by Brawn-Riera Company; Boa Marche's store; loss \$50,000 to \$15,000.

Ga., Atlanta.—Building at 12 E. North Ave., owned by Thomas J. and E. A. Peoples.

Ga., Macon.—Dwellings at 1703-1707 2d St., owned by W. N. Streyer, and dwelling at 1717 2d St., owned by T. E. Wood; loss \$5000.

Ga., Tonnille.—Tonnille Oil Co.'s seedhouse and offices; loss \$50,000 to \$75,000.

Ky., Central City.—Central City Foundry & Machine Co.'s plant, owned by E. B. Miller; loss \$10,000.

Ky., Hopkinsville.—Ben Rash Memorial Hall at McLean College; loss \$25,000; A. C. Kuykendall, president.

Ky., Louisville.—St. James Apartment-house; loss about \$100,000.

Ky., Louisville.—Whalen Bros. building at 222-26 W. Jefferson St.; loss \$30,000.

La., Eatherwood.—J. A. Robins' residence; loss \$4000.

Md., Baltimore.—Philadelphia Dental Parlors at 123 N. Howard St.; Read Drug & Chemical Co.'s building at Howard and Lexington Sts. damaged; total loss about \$20,000.

Md., Brooklyn.—George Kreiner's residence, occupied by Albert Price; H. C. Glantz's three dwellings, store and hall; total estimated loss \$25,000.

Md., Sykesville.—Betsy Patterson Mansion at Springfield State Hospital; loss on building about \$10,000; Phillips Lee Goldborough, Governor, Annapolis, Md.

Miss., Clarksdale.—Benevolent Protective Order of Elks' home; loss about \$15,000.

Miss., Clarksdale.—Clarkston College's dormitory.

Miss., Clarksdale.—Lodge building of Clarksdale Benevolent Protective Order of Elks damaged; loss \$20,000.

Miss., Hardy.—C. E. Smith's store; Stokes Bros.' store; J. A. Martin's store; L. McCracken's store; building owned by estate of Dr. Backsdale.

Miss., Taylorsville.—J. N. Ainsworth Mercantile Co.'s store; loss \$6000.

Miss., Vicksburg.—Gustave Guessell's row of residences on Speed St.; loss about \$10,000.

Mo., Kansas City.—Margolis Jewelry Co.'s building at 1007 Main St.

Mo., St. Louis.—Paulian Bldg. at Union and Eastern Aves., owned by Union-Easton Real Estate & Building Co.; loss \$20,000 to \$35,000.

N. C., Burlington.—Glen Raven Cotton Mill's warehouse near Burlington, owned by J. Q. Gant; loss \$7000.

N. C., Edenton.—J. E. Twine Company's store, owned by J. H. Holmes and Oscar Elliott; loss about \$15,000.

N. C., Mooresville.—St. James' Lutheran Church. Address The Pastor, St. James' Lutheran Church.

N. C., St. Pauls.—Opie Odum's electric plant, two cotton gins, two grist mills and novelty works; loss \$8000 to \$10,000.

N. C., Newbern.—Stewart Building, on Middle St.; loss about \$50,000.

N. C., Raleigh.—Raleigh Creamery, owned by L. N. Oden.

N. C., Rocky Mount.—L. C. Norris' dwelling; loss \$6000.

N. C., Spencer.—Southern Railway's round-house damaged; loss about \$5000; B. Herman, chief engineer, Washington, D. C.

N. C., Waynesville.—Waynesville Wood Manufacturing Co.'s planing mill, furniture factory and drykilns; loss \$10,000.

Okla., Granite.—St. James Hotel.

S. C., Marion.—Carolina Yellow Pine Co.'s lumber plant.

S. C., Mayesville.—Lowry Institute's main building.

S. C., St. George.—N. G. Leonard's stable; W. L. Byrd's residence; A. M. Patrick's residence; loss about \$10,000.

S. C., Summerton.—Andrew's Chapel Methodist Episcopal Church; Rev. John B. Wilson, pastor.

Tenn., Erwin.—Floyd Wiley's residence.

Tenn., Greeneville.—Chairs.—Greeneville Chair Co. will erect addition to plant.

Tenn., Kingston.—Kingston Bank & Trust Co.'s building; Goodman & Lowry Drug Co.'s building; J. M. Allen's crockery store; loss \$15,000.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Tenn., Knoxville.—Enterprise Carriage Works; loss \$5000 to \$8000.

Tenn., Nashville.—A. S. Dies & Company's hoop factory; loss \$4000 to \$5000.

Tenn., Springfield.—Matthews, Butt & Co.'s store on Main St., building owned by Mrs. Lottie G. Hart; loss about \$5000.

Tex., Brownsville.—Macedonia Garcia's grocery and bakery; loss \$15,000.

Tex., Calvert.—Gibson Gin & Oil Mill Co.'s cotton gin; loss about \$20,000; cottonseed-oil mill owned by same company damaged.

Tex., Denton.—S. S. Patterson's building, occupied by Denton Furniture Exchange and Johnson Bros.' barn, loss \$10,000; City Livery Stables, owned by P. S. Green, loss \$2500.

Tex., Fort Worth.—First Baptist Church and parsonage; Rev. J. Frank Morris, pastor; loss on church, \$80,000.

Tex., Lufkin.—Schumaker Grocery Co.'s warehouse; loss \$9000.

Tex., Navasota.—Palace Pharmacy, owned by S. J. Emory & Co.; F. W. Brosig's store; C. V. Vaughan's store.

Tex., Orange.—E. W. Brown's building; Stark Mercantile Co.'s building; Mrs. P. Lausen's building; total estimated loss \$85,000.

Tex., Royce City.—J. M. Paulk's residence; loss \$4000.

Tex., San Angelo.—Fort Concho Hotel; loss about \$8000.

Tex., San Antonio.—A. McDonald's art and paint store; loss \$12,000 to \$14,000.

Tex., Sweetwater.—L. T. Maners' residence; loss \$7000 to \$8000.

Tex., Tyler.—Roberts & Sikes' cotton gin; loss \$3500.

Tex., Waco.—M. T. Bell and S. M. Seat's building on S. 4th St.; loss \$30,000.

Va., Dublin.—Norfolk & Western Railway's freight depot; C. S. Churchill, chief engineer. Roanoke, Va.

Va., Manassas Hotel.—Curry House, owned by estate of Mrs. Catharine Curry.

Va., Port Norfolk, P. O. at Portsmouth.—Planters' Manufacturing Co.'s barrel factory at 7th St. and Maryland Ave.

W. Va., Clarksburg.—Clarksburg Foundry & Casting Co.'s plant; loss \$7000 to \$8000.

W. Va., Belington.—Belington Opera House; postoffice; H. M. Haldaman's grocery store and other structures; loss about \$25,000.

W. Va., Clarksburg.—Buildings owned by Latstetter estate and occupied by Hugh F. Burke, Will Ebnitz and W. D. De Forest's offices; loss about \$10,000.

W. Va., Martinsburg.—J. W. Wilburn's residence; loss \$3000.

to erect club building at 16th and Walker Sts.; three stories; reinforced concrete and stone; cost \$30,000.

Okla., Tulsa.—Knights of Columbus will erect building.

Tenn., McEwen.—Lafayette Williams of Williams Hardware Co. will erect store and lodge building. (See "Stores.")

Tex., Beaumont.—Benevolent and Protective Order of Elks will expend \$150,000 to erect lodge and office building; 8 stories; fireproof construction; architect not selected. (Recently noted.)

Tex., Beaumont.—W. C. Tyrrell, 1347 Calder Ave., will open bids about February 10 to erect proposed lodge and store building. (See "Stores.")

Tex., Ennis.—Independent Order of Odd Fellows will erect lodge building; two stories; 35x80 feet.

Va., Fredericksburg.—Lodge No. 4, Ancient Free and Accepted Masons, will erect proposed Washington Memorial Temple; cost about \$25,000.

Va., Richmond.—Young Women's Christian Association accepted plans by Noland & Baskerville, Richmond, for association building; cost about \$160,000; Henry W. Wood, chairman of committee. (Mentioned in December.)

Va., Staunton.—Benevolent Protective Order of Elks will erect lodge building.

Va., Richmond.—Henry S. Wallerstein will erect stores and lodge building. (See "Stores.")

W. Va., Bluefield.—Independent Order of Odd Fellows and Improved Order of Red Men will erect business block and lodge building on Mercer St.; brick.

feet; ornamental brick construction; plate-glass windows. (Recently noted.)

Md., Baltimore.—American Bonding Co., Equitable Bldg., is having tentative plans prepared for office building at Light and German Sts.; five stories; steel; fireproof. (Previously noted.)

Md., Hagerstown.—People's National Bank is reported as to erect bank building.

Mo., St. Louis.—New National Bank of Commerce will expend \$4500 for improvements to offices on third floor.

Okla., Tulsa.—C. A. and John D. Mayo, H. F. Aby and W. P. Tucker will, it is reported, erect office building; eight or ten stories.

Tex., Beaumont.—Benevolent and Protective Order of Elks No. 311 will erect office and lodge building. (See "Association and Fraternal Buildings.")

Tex., El Paso.—Rio Grande Valley Bank & Trust Co. will erect addition to bank building.

Tex., Marshall.—Wells-Fargo & Co., New York office, 51 Broadway, E. L. Selleck, superintendent, Dallas, Tex., will, it is reported, erect office building; two stories and basement.

Tex., Rockdale.—J. W. Perry will erect store and office building. (See "Stores.")

Tex., Tyler.—Magnolia Petroleum Co., Galveston, Tex., will erect business offices, etc. (See "Miscellaneous Enterprises.")

CHURCHES

Ala., Birmingham.—Congregation Emmanuel, Morris Newfield, rabbi, will receive bids until February 10 to erect temple; Italian Renaissance; tapestry brick and granite; two lobbies; main auditorium to seat 900 to 1000; main Sabbath-school room to seat 450; cost about \$80,000; plans by William C. Weston, Birmingham; Samuel Adler, chairman of building committee. (Recently more fully described.)

Ark., Morrilton.—First Baptist Church plans to erect edifice. Address The Pastor, First Baptist Church.

D. C., Washington.—St. Stephen's Catholic Church, Pennsylvania Ave. and 25th St., plans to erect edifice. Address The Pastor, St. Stephen's Catholic Church.

Ga., Athens.—Christian Church, Rev. Stanley Grubb, pastor, plans to erect edifice.

Ga., Columbus.—Rose Hill Presbyterian Church plans to erect edifice; W. C. Pease, chairman of building committee.

Ga., Fort Valley.—H. A. Matthews, chairman of committee, will receive bids until 1 P. M. February 20 to erect Sunday-school addition to Methodist church; plans and specifications may be had by addressing G. Lloyd Preacher, architect, Augusta, Ga.

Ga., Savannah.—Southside Baptist Church, Rev. John S. Wilder, pastor, is having plans prepared by H. W. Witcover, Savannah, for edifice; 100x90 feet; main auditorium to seat 2000; opera chairs; cost about \$40,000. (Recently noted.)

Miss., Vicksburg.—South Washington Street Methodist Church, Rev. Dr. W. H. Saunders, pastor, is having plans prepared to erect church at Washington and Kline Sts.; brick and concrete; cost \$30,000.

Mo., St. Louis.—St. Michael and All Angels' Episcopal Church, Rev. Geo. B. Norton, pastor, is having plans prepared by J. Jamieson of Cope & Stewardson for church at Wydown and Ellenwood Aves.

N. C., Charlotte.—Villa Heights Associate Reformed Presbyterian Church will erect edifice; cost \$3000. Address The Pastor, Villa Heights Associate Reformed Presbyterian Church.

N. C., Lenoir.—First Baptist Church, Rev. J. O. Fulbright, pastor, plans to erect edifice to cost about \$6000.

N. C., Winston-Salem.—Rev. Clement Manly Morton, pastor of Fourth Street Christian Church, is interested in organization of Christian Church and erection of edifice.

S. C., Gaffney.—First Baptist Church, Rev. J. S. Dill, pastor, is having plans prepared to erect Sunday-school.

Okla., Tulsa.—Grace Methodist Episcopal Church has not adopted plans for edifice; 75x75 feet; ordinary construction; John W. Kennet, 1497 Hodge St., Tulsa, may be addressed. (Recently noted.)

S. C., Branchville.—Baptist congregation will erect edifice; plans not determined; Rev. J. R. Fiser, pastor.

S. C., Summerton.—Andrew's Chapel Methodist Episcopal Church, Rev. John B. Wilson, pastor, will erect structure to replace edifice reported burned.

Tex., Clarendon.—Baptist congregation plans to erect edifice; cost \$15,000. Address The Pastor, Baptist Church.

BUILDING NEWS

BUILDINGS PROPOSED

APARTMENT-HOUSES

Ala., Birmingham.—Special correspondent wires Manufacturers Record: "Birmingham Realty Co., I. C. Beatty, general manager, reported contemplating erection of apartment-house; seven or eight stories; concrete construction; cost \$150,000."

Ga., Atlanta.—E. M. Durant has plans by L. R. Wilburn, Peters Bldg., Atlanta, for apartment-house; three stories; 12 apartments; Spanish architecture; brick; tile roof; iron and marble stairway; tile and hardwood floors; vacuum-cleaning system; gas and electric lighting; freight elevator; cost \$150,000; day labor.

Ga., Atlanta.—A. J. Boswell will erect store, office and apartment building. (See "Stores.")

Ga., Atlanta.—E. P. Black estate trustees will erect addition to Black apartments on North Pryor St.; cost \$30,000.

Ga., Atlanta.—Mrs. John W. Akin will erect apartment-house and automobile showroom building at Peachtree St. and North Ave.; 88x150 feet; four stories; concrete; cost \$50,000.

Md., Baltimore.—Thomas R. Bond, representative of Edgcomb Apartments, has plans by Theodore Wells Pletsch, American Bldg., Baltimore, for apartment-house; 40x172 feet; three stories; brick, stone and terra-cotta; vacuum cleaning and refrigerating plant; hot-water heat; cost \$75,000; contractors estimating are D. M. Andrew Company, Mt. Vernon Ave. and 27th St.; Consolidated Engineering Co., Bromo Seltzer Tower Bldg.; Milton C. Davis, 15 E. Fayette St.; J. Henry Smith, 126 Light St.; E. G. Turner, Bateman Ave. near Garrison Ave., and J. F. Hardy, Groveland and El Dorado Aves., all of Baltimore. (Previously noted.)

Md., Baltimore.—Henry S. and Laurence Reese, 347 N. Charles St., will, it is reported, remodel building at 527 N. Charles St. into apartment-house.

Mo., St. Louis.—Arcon Realty & Investment Co., 713 Chestnut St., will open bids May 1 to erect apartment-house; 85x40 feet; ordinary construction; cost of heating \$2000; cost of building \$18,000; plans by Stephens & Pearson, 705 Olive St., St. Louis. (Recently noted.)

Mo., St. Louis.—A. H. Weidert will erect two-story tenement-house at 5759 McPherson St.; cost \$6000.

Mo., St. Louis.—P. J. Driscoll will erect tenement-house at 3306-06a Chippewa St.; two stories; cost \$4000.

Mo., St. Louis.—Francis Realty & Investment Co. will erect apartment-house at McPherson and Laurel Aves.; 12 apartments of four, five and six rooms; cost about \$50,000.

Mo., St. Louis.—H. Schmidt will erect tenement-house at 5122-24 Emily St.; two stories; cost \$5800.

Mo., St. Louis.—Max Kaiser will erect two-story tenement-house at 3215 Natural Bridge St.; cost \$5000.

Mo., St. Louis.—Alice Building & Realty

Co. will erect tenement-house at 5747 McPherson St.; three stories; cost \$11,000.

Mo., St. Louis.—Trade Realty & Building Co. will erect two-story tenement-house at 4300-02 Lee Ave.; cost \$7500.

Mo., St. Louis.—Francis Construction & Realty Co. will erect apartment-house at McPherson Ave. and Laurel St.; four, five and six rooms; accommodations for 12 families; cost \$50,000.

Mo., St. Louis.—Joseph A., Arthur A. and Louis Rossier will erect store and apartment building. (See "Stores.")

N. C., Durham.—George W. Watts is having plans prepared to erect apartment-house on West Main St.; three stories; pressed brick and stone; 10 five-room apartments and four two-room apartments; gas and electric lights; steam heat; construction to begin March 10.

S. C., Columbia.—Dr. L. B. Owens will, it is reported, erect store and apartment building. (See "Stores.")

Tenn., Chattanooga.—A. A. Dragoo will erect apartment-house at 5th and Poplar Sts.; two stories; six apartments; frontage 102 feet; plans by Stewart & Johnson, Chattanooga.

Tex., Houston.—Isham T. Roberts and associates leased property and are having plans prepared by Gulf Coast Construction Co., fifth floor of Stewart Bldg., Houston, for apartment-house; 36 apartments, containing three rooms each; to be equipped with portable wall beds, steam heat, baths and laundry.

Tex., Houston.—M. E. Foster will open bids February 10 to erect apartments and stores. (See "Stores.")

Va., Richmond.—W. C. Saunders will erect tenement-house; two stories; brick; cost \$6000.

ASSOCIATION AND FRATERNAL

Fla., St. Augustine.—Fraternal Building Co. will erect fraternal building; three or four stories; site 50x146 feet.

Ga., Thomasville.—Young Men's Christian Association will inaugurate campaign February 19 to raise \$13,000 to double size of Association building, increasing seating capacity of hall, enlarge gymnasium equipment, add more sleeping-rooms and remodel interior.

Ky., Island.—Island Lodge No. 743, Ancient Free and Accepted Masons, E. H. Flanagan, secretary, will erect 36x30-foot lodge building about July 1.

Miss., Greenwood.—Benevolent Protective Order of Elks will erect lodge building; cost \$25,000.

Mo., St. Louis County.—Judson J. McKim of St. Louis, Mo., and others are interested in erection of Young Men's Christian Association building between St. Louis and Webster Groves, Mo.; plan campaign to raise \$50,000 for this purpose.

Okla., Oklahoma City.—R. O. Wheeler, architect, Patterson Bldg., is preparing plans

BANK AND OFFICE

Ala., Ensley.—Dr. E. F. Fields will erect office, store and theater building. (See "Stores.")

Ala., Mobile.—Mobile Light & Railroad Co., 128 Government St., J. Howard Wilson, president, will erect office building on Spring Hill Ave. between Broad and Pine Sts.; two stories; brick and concrete reinforced with steel; fireproof; portion of ground floor for car-barns; cost \$75,000 to \$85,000.

Ala., Scottsboro.—J. C. Jacobs Banking Co. will erect bank building; brick; brownstone front; five stories.

Ark., Huntington.—Thomas C. Bragg is having plans prepared for office building; two stories; brick.

Ark., Little Rock.—Lesser-Goldman Cotton Co. will erect commercial block. (See "Stores.")

Ark., Texarkana.—Texarkana National Bank is considering plans for seven-story bank building; cost \$150,000 to \$200,000.

Fla., Miami.—Miami Bank & Trust Co. is having plans prepared to erect bank building.

Fla., Mulberry.—W. C. Harris will erect store and office building. (See "Stores.")

Fla., Sanford.—J. L. Miller will erect store and office building. (See "Stores.")

Ga., Atlanta.—J. T. Kimbrough & Company, agents for Garner Blakely & Company of Cairo and Bainbridge, Ga., will erect refrigerator and office building at Whitehall and Benjamin Sts.; two stories and basement; 98x100 feet; brick; cost \$11,000.

Ga., Atlanta.—A. J. Boswell will erect office, store and apartment building. (See "Stores.")

Ga., Atlanta.—Realty Trust Co. will, it is reported, erect building; not less than six stories and possibly 10 to 12 stories.

Ga., Dublin.—First National Bank will expend \$70,000 to erect 30x90-foot bank building; fireproof construction; steam heat; date of opening bids not set. (Recently noted.)

Ky., Louisville.—Southern National Life Insurance Co., Ed. L. Williams, president, will erect office building at 4th and Market Sts.; 21 stories; 43x68 feet.

Ky., Louisville.—Norton Company will erect office building at 4th and Market Sts.; five stories; brick; cost \$60,000.

Ky., Louisville.—Southern National Life Insurance Corporation incorporated with \$300,000 capital stock by Ed. L. Williams and others; will erect 18 or 20-story office building to be occupied by Southern National Life Insurance Co.; cost about \$400,000.

La., Baton Rouge.—A. S. Baldwin, chief engineer Yazoo & Mississippi Valley Railroad Co., Chicago, Ill., states that company does not at present contemplate erecting office building as recently noted.

Md., Baltimore.—Charles J. Bonaparte, 216 St. Paul St., awarded contract to John Cowan, 106 W. Madison St., Baltimore, to erect office and warehouse building at 6 S. Calvert St. for American Express Co., 65 Broadway, New York; two stories; 27x157

Tex., Houston Heights.—Houston Heights Christian Church organized; J. O. Goodman, chairman of committee; plans to erect edifice.

Tex., Houston.—Tabernacle Methodist Church, Rev. E. L. Shettles, pastor, will expend \$50,000 to erect edifice; plans not adopted. (Recently noted to have purchased site.)

Tex., San Antonio.—First United Presbyterian Church will erect edifice at East Locomot and Ogden Sts.; cost \$35,000. Address The Pastor, First United Presbyterian Church.

Va., Norfolk.—City Church Extension Board, Capt. John L. Roper, chairman, will erect church in Fairmont Park.

CITY AND COUNTY

Ga., Atlanta.—Cyclorama.—Park Commission has not selected architect to prepare plans for cyclorama building; 150 feet in diameter; 54 feet high; heating undecided; fireproof construction; cost \$15,000. (Recently noted.)

La., New Orleans.—Engine-house.—City is having plans prepared by E. A. Christy, New Orleans, for improvements to No. 2 engine-house on Julia St., to include two repair shops, etc.; cost \$4000. (Recently noted.)

La., New Orleans.—Casino.—City Park Board will erect casino in City Park, comprising restaurant, refreshment stand, boat-house, etc.; probably have roof garden; cost about \$35,000; Charles Dittman, chairman of executive committee.

Md., Baltimore.—Recreation Building.—City is having plans prepared by Robert C. Ulrich, 422 Law Bldg., Baltimore, for building on recreation pier at foot of Ann St.; concrete.

N. C., La Grange.—Hall and Market.—Town will vote March 4 on \$30,000 bond issue to erect town hall and market-house, etc. Address D'Leon M. Fields, Town Clerk. (See "Water-works.")

Tenn., Johnson City.—City Hall and Courthouse.—City will erect \$50,000 city hall and courthouse. Address The Mayor.

Tex., Victoria.—Fire Station.—City plans to erect central fire station. Address The Mayor.

Va., Richmond.—Market.—City approved plans by Carneal & Johnson, Richmond, for market; meat market, 334 feet 8 inches by 41 feet; vegetable market, 233 feet 2 inches by 51 feet 9 inches; fireproof; electric lighting; cost \$33,000; plans ready in a few days.

COURTHOUSES

Ala., Huntsville.—Madison County Commissioners will remodel and improve courthouse; will rebuild fronts, provide offices, etc.

Ark., Osceola.—Mississippi County Commissioners will open bids February 12 to erect courthouse; plans by John Gaisford, Memphis, Tenn. (Recently noted.)

Ky., Catlettsburg.—Boyd County Commissioners are having plans prepared by R. L. Day, Room 4 Hotel Frederick Bldg., Huntington, W. Va., for courthouse; 82x84x60 feet; standard reinforced concrete; slab roof; asphalt finish; architectural enameled terra-cotta; Bedford wired glass; exterior and interior marble; ornamental iron; slate stairs; steam heat; vacuum cleaner; electric wiring.

S. C., Yorkville.—York county will vote on \$75,000 bond issue to erect courthouse. Address County Commissioners.

Tenn., Johnson City.—City will erect \$50,000 city hall and courthouse. Address The Mayor.

Tex., Alice.—Jim Wells County Commissioners will receive bids until February 12 to erect courthouse; Walter Perkins, County Judge. (Recently noted.)

DWELLINGS

Ala., Hartselle.—C. C. Doss will erect five cottages.

Ala., Montgomery.—C. P. Anderson is having plans prepared by Frederick Ausfield, 1024 Bell Bldg., Montgomery, for residence; standard construction; classic design; brick veneer and pressed brick; stone and terra-cotta trimmings; steam or hot-water heat; cost \$15,000 to \$16,000; will let contract in February.

Ala., Tuscaloosa.—F. W. Monahan will erect 50 to 100 dwellings.

Ark., Argenta.—W. C. Faucette has plans by Theo. M. Sanders, Little Rock, for five cottages.

D. C., Washington.—J. S. Gruver of Thrift Building Co., Union Trust Bldg., will erect two-story brick dwellings at 419-27 7th St. N. W., and four two-story brick dwell-

ings at 612-18 Upshur St. N. W.; cost \$27,000.

D. C., Washington.—Harry Wardman, 1342 New York Ave., will erect 44 two-story brick dwellings at 758-78 Columbia Rd., 758-78 Hobart Pl., 759-79 Harvard St. N. W.; cost \$66,000; 12 two-story brick dwellings at 2901-23 Sherman Ave. N. W., cost \$27,000, and 12 stores on Sherman Ave. N. W., cost \$12,000.

D. C., Washington.—John H. Nolan, 1413 G St. N. W., will erect 16 three-story brick dwellings on Columbia Rd. between 12th and 13th Sts. N. W.; frontage 20 feet each.

D. C., Washington.—L. E. Breuninger, 1756 Park Rd. N. W., will erect row of dwellings at Park Rd. and 13th St. N. W.

D. C., Washington.—John Wilkins, Hibbs Bldg.; Henry B. Spencer, vice-president Southern Railway, 1300 Pennsylvania Ave. N. W.; Murray A. Cobb and John P. Story of Story & Cobb, 1102 Connecticut Ave. N. W., Incorporators of Massachusetts Avenue Realty Co., will each erect residence. (See "Land Development.")

D. C., Washington.—William H. Wilson, 1515 10th St., will erect dwelling and garage as recently reported.

D. C., Washington.—Ernest G. Walker, 2509 Cliffbourne Pl., will erect three dwellings; two stories and attic; brick; cost \$15,000.

D. C., Washington.—H. R. Howenstein, 1314 F St. N. W., will expend \$3000 to erect dwelling; 20x40 feet; eight rooms and bath; plans by L. T. Williams, 1389 F St. N. E., Washington; construction by owner. (Recently noted.)

D. C., Washington.—Kennedy Bros., 1334 H St. N. W., will erect two semi-detached dwellings on Woodley Pl.; white stucco; red tile roofs; three stories and basement; 15 rooms; three masonry porches 12x25 feet on each house; garage and billiard rooms in basement; cost, including site, \$75,000; will also erect 13 six-room dwellings on Lexington St. N. E.

D. C., Washington.—Edwin Brink & Son, 804 13th St. N. W., may be addressed relative to building 15 dwellings recently reported as to be erected by Edmund Fox.

Fla., Ocala.—L. N. Green will erect residence; colonial style.

Fla., Sanford.—R. L. Whitney will erect winter residence.

Fla., St. Petersburg.—Charles McNabb of Knoxville, Tenn., will erect number of bungalows.

Fla., Tampa.—Harry Cunningham of Cadillac Sales Co. is receiving bids to erect bungalow.

Fla., Tampa.—L. L. Keister has plans by A. L. Shaw, Tampa, for residence; two stories; seven rooms.

Fla., Tampa.—G. B. Broadhurst will erect residence.

Fla., Tampa.—J. J. Knight is reported as to erect residence.

Fla., Tampa.—Z. E. Martin will erect bungalow.

Fla., Tampa.—A. A. Knight is reported as to erect residence.

Ga., Atlanta.—John D. Harrington will erect six-room bungalow; cost \$4000.

Ga., Atlanta.—Dr. O. Lee Chestnut will erect residence; cost \$4500.

Ga., Atlanta.—George Wright will erect six-room bungalow; cost \$4000.

Ga., Atlanta.—Carl Zoller will erect residence; nine rooms; cost \$4500.

Ga., Atlanta.—D. E. Patterson will erect dwelling at 130 Elizabeth St.; two stories; frame; cost \$4000; day labor.

Ga., Atlanta.—J. N. Renfro and N. M. Daniel will erect five one-story frame dwellings; cost \$17,000; day labor.

Ga., Atlanta.—R. H. Harris will erect five dwellings at 75-85 La France St.; cost \$10,000.

Ga., Atlanta.—Gate City Home Building Co. will erect residence at 610 Highland Ave.; cost \$5000.

Ga., Atlanta.—Louis Kolb will erect residence at 29 Piedmont Pl.; cost \$5500.

Ga., Atlanta.—B. H. Hartsfield will erect residence at 64 9th St.; cost \$3500.

Ga., Atlanta.—Pitman Construction Co. will erect residence at 90 Sinclair Ave.; cost \$4000.

Ga., Atlanta.—H. B. Chamblee will erect residence at 166 Cypress St.; cost \$3000.

Ga., Atlanta.—H. B. Chamberlain will erect one-story dwelling; frame; cost \$3000.

Ga., Atlanta.—Louis Kolb will erect two-story frame dwelling; cost \$5500.

Ga., Savannah.—George Fall will erect residence.

Ga., Summerville.—C. D. Harper will rebuild dwelling previously noted burned at Chelsea, Ga.; 40x40 feet; two stories; hot-water heat; acetylene-gas lighting; cost \$2500. (See "Machinery Wanted.")

Ky., Louisville.—J. W. Brown will erect four dwellings at 4100-6 W. Chestnut St.; frame; cost \$8000.

Ky., Louisville.—J. R. Dorsey will erect frame bungalow and frame cottage; cost \$3750 and \$2250, respectively.

La., Donaldsonville.—K. A. Aucoin will erect two dwellings in Lemann Addition.

La., Gramercy.—Colonial Sugar Co. will erect 10 dwellings; contemplates erection of 20 additional dwellings later.

La., New Orleans.—G. A. Demack will erect residence; two stories; frame; cost \$6200.

La., New Orleans.—Lafon Old Folks' Home will erect three cottages; cost \$3950.

Md., Baltimore.—Thomas F. Mullan, Old York Rd. near Dumbarton Ave., is having plans prepared by A. F. Blatchley for dwelling on Cator Ave. near Ellerslie Ave.; two and a half stories; 25x27 feet; slate roof; frame cornice.

Md., Baltimore.—Charles S. Golding, Lake and Bellona Aves., will erect eight cottages on York Rd. near Ravenswood Ave.; 16x41 feet; ordinary construction; hot-air heat; gas and electric lighting; plans and construction by owner.

Md., Baltimore.—Adam Roeder of Geo. Roeder & Sons, 58-60 Lexington Market, will erect cottage on Severn River.

Md., Baltimore.—John T. Donohue, 1908 Thames St., will erect about 25 dwellings on Ellwood Ave., Pratt St. and Lombard St., Canton; is having plans prepared by Chas. Broring, 9 N. Potomac St., Baltimore, for 22 dwellings on Ellwood Ave. between Fleet and Foster Sts.; two stories; brick; slag roof; hot-water heat; 15x50 feet; cost \$28,000; construction by owner.

Md., Baltimore.—Webb & White, 407 Maryland Telephone Bldg., have plans by Henry J. Tinley, 312 N. Charles St., Baltimore, for cottage at Forest Park; frame and stucco; 36x38 feet; two and a half stories; slate roof; steam heat.

Md., Baltimore.—John S. Bridges, 26-28 S. Charles St., has plans by E. L. Palmer, 408 Roland Ave., Roland Park, Md., for residence on Charles St. near University Parkway; three stories; brick and stone; contractors estimating are Willard E. Harn Company, 213 N. Calvert St.; Gladfelter & Chambers, Parkdale and Maryland Aves.; E. G. Turner, Bateman Ave. near Garrison Ave.; M. C. Davis, 15 E. Fayette St.; Ignatius Smith, 30 N. Poppleton St., and William H. Porter & Son, 505 Forrest St., all of Baltimore.

Md., Chevy Chase.—Chevy Chase to Great Falls Land Corporation, H. Bradley Davidson, president, 1413 G St. N. W., Washington, D. C., will, it is reported, erect two villa homes at Bardley Hills.

Miss., Meridian.—John Winkler will erect residence; cost \$5000.

Miss., Meridian.—John Winkler is asking bids for erection of two-story residence; oak finish; steam heat; cost \$4500.

Mo., Kansas City.—Kansas City Realty Co. will erect brick residence at 4246 Campbell St.; cost \$5000.

Mo., Kansas City.—B. A. Bowmaster will erect five dwellings at 3723-40 Olive St.; frame; one and a half stories; cost \$10,000.

Mo., Kansas City.—P. A. Mangold will erect stucco dwelling at 1322 E. 43d St.; cost \$3000.

Mo., Kansas City.—H. W. Wells will erect seven frame and one stone-veneer dwellings; cost \$17,000.

Mo., Kansas City.—C. L. Merry will erect brick dwelling at 5252 Cherry St.; cost \$12,000.

Mo., Kansas City.—Phillips Building Co. will erect stucco dwelling at 3812 Wyoming St.; cost \$4000.

Mo., Kansas City.—C. E. Mace will erect stone-veneer dwelling at 228 63d St.; cost \$3000.

Mo., Kansas City.—Fred Johnson will erect four frame dwellings at 1101-05 42d St.; cost \$8000.

Mo., Kansas City.—Cliff Jones will erect residence at 836 W. 57th St.; two and a half stories; wood and stucco veneer; cost \$10,000.

Mo., St. Louis.—Leisner Realty & Building Co. will erect three two-story dwellings at 437-41 Wyoming St.; cost \$9000.

Mo., St. Louis.—Grand Realty Co. will erect six dwellings at 3333-47 Rutger St.; two stories; cost \$13,500.

N. C., Elizabeth City.—Christ Episcopal Church contemplates erection of parish-house. Address The Pastor, Christ Episcopal Church.

N. C., Forest City.—W. C. Bostic will erect residence to cost \$5000.

N. C., North Wilkesboro.—W. F. Trogdon will erect colonial residence; plans not made.

N. C., Raleigh.—S. W. Williams, 190 W.

Edenton St., purchased lot and will erect nine-room residence. (See "Machinery Wanted.")

N. C., Raleigh.—E. H. Jordan purchased lot and will erect dwelling.

Okla., Tulsa.—John D. Mayo has plans by Winkler & McDonald for dwelling; hot-air heat; gas and electric lighting; cost \$5500. (Recently noted.)

S. C., Columbia.—G. P. McKinston will erect dwelling at 1003 Pickens St.; frame; cost \$3500.

S. C., Greenville.—Mrs. C. A. Sanford will erect residence at Garlington and Sumner Sts.; cost \$3000; D. H. Attaway, architect; M. T. Loftis, builder.

S. C., Greenville.—Raven I. McDavid is having plans prepared by Park Dallas, Greenville, for residence and garage; two stories; cost \$10,300. (Recently noted.)

Tenn., Erwin.—Floyd Wiley will, it is reported, rebuild structure reported burned.

Tenn., Etowah.—A. B. Bayless has plans by Charles A. Hayes, Etowah, for two-story dwelling; frame and stucco; slate roof; hot-water heat; electric lighting; now ready for bids. Address architect.

Tenn., Knoxville.—Rev. Father Graham has plans by Charles A. Hayes, Etowah, Tenn., to remodel residence on Vine Ave. Address architect.

Tenn., Knoxville.—Miss Bernice A. Shuessler will erect bungalow at Fifth Ave. and Winona St., Park City; seven rooms; steam heat; cost \$3000; plans by W. H. Gildard, Knoxville.

Tenn., Memphis.—H. Dugach will erect residence at 1415 Agnes Pl.; cost \$4175.

Tenn., Memphis.—Caruthers Ewing, 2382 Madison Ave., will erect residence; 12 rooms; tile and concrete; cost \$17,000.

Tenn., Nashville.—Charles H. Hooper is having plans prepared by Fletcher & Billis, Nashville, for residence; two stories; brick; eight rooms; slate roof; cost \$5000.

Tex., Bay City.—J. M. Morgan will erect boarding-house in West Bay City.

Tex., Dallas.—W. Gasmond will erect residence at 5410 Ross Ave.; brick; cost \$6000.

Tex., Dallas.—W. W. Fisher will erect residence at 2728 Oak Lawn Ave.; cost \$3400.

Tex., Dallas.—T. S. Miller will erect residence at 301 Jefferson St.; brick veneer; cost \$8000.

Tex., El Paso.—Mayfield Realty Co., American Bank Bldg., will expend \$2400 to \$3400 each to erect several dwellings; 5 and 6 rooms; ordinary construction; red-pressed brick; shingle roof; oak floors; cement porches; plans and construction by company. (Recently noted.)

Tex., Houston.—O. L. Cochran will erect residence on Brandt St.; nine rooms; cost \$16,000.

Tex., Houston.—Fred A. Jones will erect 80 bungalows in Lincoln Place; electric lights, porches, baths, etc. (See "Land Developments.")

Tex., Houston.—Houston Land Corporation will erect three residences on Yoakum Boulevard; cost \$5000 to \$8000.

Tex., Houston.—W. L. Edmondson will erect residence; six rooms; cost \$3000.

Tex., Mineral Wells.—Bids received by W. V. Clark until February 6 to erect two-story and basement brick residence; 46x60 feet; probably hot-air heat; gas and electric lighting; cost \$12,000; C. H. Lembach, architect.

Va., Norfolk.—C. C. Fitch will erect residence on Armistead Bridge Rd.; cost \$3600.

Va., Richmond.—Thomas P. Boyle will erect 12 detached brick dwellings; cost \$48,000.

Va., Richmond.—Mary S. Danner will erect three detached two-story brick dwellings on Main St. near Davis St.; cost \$13,900.

Va., Richmond.—J. Edward Redford will erect store and dwelling. (See "Stores.")

Va., Richmond.—Edward Tyler will erect dwelling at 1315 N. 33d St.; two stories; frame; cost \$12,000.

GOVERNMENT AND STATE

Ark., Paragould.—Postoffice.—Treasury Department, James Knox Taylor, supervising architect, Washington, D. C., rejected all bids to erect postoffice building. (Previously noted.)

Fla., Miami.—Postoffice.—Treasury Department, James Knox Taylor, supervising architect, Washington, D. C., rejected all bids to erect Federal building. (Previously noted.)

D. C., Washington.—Federal Building.—Department of Agriculture has plans by Arthur W. Hall, Evans Bldg., Washington, for building for several bureaus of the department now located elsewhere.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

La., Algiers, Station A, New Orleans.—Immigration Station.—Samuel E. Redfern, Commissioner of Immigration, Maison Blanche Bldg., New Orleans, is having plans revised by DeBuys, Churchill & Laboulasse, New Orleans, for immigration station; plans will be submitted to three contractors who previously bid on construction. (Previously noted.)

Md., Sykesville.—Hospital.—State plans to rebuild Patterson Mansion at Springfield State Hospital reported burned; loss \$10,000; Phillips Lee Goldsborough, Governor, Annapolis, Md.; John Hubner, chairman board of managers.

Okla., Vinita.—Insane Hospital.—State Board of Affairs will probably erect buildings for insane within next few months. (Previously noted.)

Va., Norfolk.—Shellhouse.—Sealed proposals, endorsed "Proposals for shellhouse and magazine buildings," received at Bureau of Yards and Docks, Navy Department, Washington, until 11 A. M. March 2, and then opened, for one shellhouse and one magazine building at Naval Magazine, Norfolk, Va.; plans and specifications obtained on application to bureau or to Commandant of Navy-yard, Norfolk, Va.; Wm. M. Smith, chief clerk in charge.

HOTELS

Ala., Birmingham.—Robert P. McDavid will erect hotel at Fourth Ave. and 17th St.; two stories; brick and steel; site 50x150 feet; cost \$15,000.

Ala., Dadeville.—Mrs. Nora E. Miller will erect hotel and business building.

Ark., Little Rock.—J. P. Grady of Kansas City, Mo., will erect hotel; cost \$30,000.

D. C., Washington.—R. T. Warwick, 1223 Vermont Ave. N. W., and Harrington Mills, The Grafton, Connecticut Ave. and De Sales Sts. N. W., will erect stag hotel at 11th and E Sts. N. W.

Ga., Atlanta.—Special correspondent wires Manufacturers Record: "Local papers report George W. Parrott will erect hotel on Peachtree St.; 8 or 10 stories; tapestry brick and stone construction; 70x200 feet; cost \$200,000; Edward E. Dougherty, 1033 Candler Bldg., Atlanta, preparing preliminary plans."

Ky., Louisville.—James H. Burnham purchased Louisville Hotel and will improve.

Mo., St. Louis.—David and Harry L. Israel leased Metropolitan Hotel; will erect additional story, improve interior, etc.; cost about \$15,000.

Mo., St. Louis.—Louis Cella is having plans prepared by Barnett, Haynes & Barnett, Century Bldg., St. Louis, for hotel at 6th and Market Sts.; eight stories; about 200 rooms, each with private bath, ice water, etc.; lobby on first floor, with foyer opening into Grand Opera House; restaurant in basement to seat 300 guests; wainscoted and decorated in colored marble; paneled ceilings, with hammered-gold soffits; columns encased in decorated falence; statuary fountain, concealed pipe organ, etc.; tile flooring; mezzanine balcony around two sides; exterior of tapestry brick; chromatic cornice; first story encased in plate glass; cast-bronze decorated glass marquee; 144x64 feet; cost about \$275,000.

Mo., St. Louis.—Joseph A., Arthur A. and Louis Rossier plan to erect hotel at 2015-17-19 Market St.; 10 stories; cost about \$150,000.

N. C., Charlotte.—Central Hotel will expend \$5000 to \$10,000 for improvements to hotel, including kalsomining, painting, remodeling, refurnishing, etc.

S. C., Columbia.—Lake View Investment Co. incorporated by W. Boyd Evans, B. L. Abney and others; contemplates erecting tourist hotel. (See "Land Developments.")

Tenn., Memphis.—Welfare Company, E. B. Truby, secretary, main office, 68 W. Washington St., Chicago, Ill., will receive competitive plans and award \$500 to architect submitting best plans for hotel; 200 rooms, 100 rooms being en suite; cost \$250,000; construction will begin about May 1. (Previously noted.)

Tenn., Paris.—Stockholders of Paris Mineral Wells Co. plan to erect hotel.

Tex., Beeville.—Young Men's Progressive League is organizing company with \$50,000 capital stock to erect hotel.

Va., Norfolk.—R. A. and G. Griffith Dodson will improve Lorraine Hotel.

Va., Richmond.—John Murphy will erect, it is reported, hotel at 8th and Broad Sts.; 14 stories; fireproof; about 400 rooms in addition to lobbies, dining-rooms, etc.; cost about \$600,000; plan is to operate in connection with two annex buildings on west side of 8th St.

W. Va., Northfork.—L. G. Toney & Co. will rebuild hotel and store building; 115x110 feet; three stories; ordinary construction;

brick and stone; steam heat; cost \$80,000; architect not selected. (Recently reported burned.)

MISCELLANEOUS

Ala., Montgomery.—Hunting Lodge.—Fred M. Hall of Detroit, Mich., will erect hunting lodge.

Ark., Conway.—Armory.—First Regiment, O. D. Longstreth, Captain of Company F, will erect armory, to include gymnasium and drillroom; cost \$6000.

Ark., Little Rock.—Stable.—Mrs. J. A. Kline is having plans prepared by Clyde A. Ferrell, Little Rock, for stable at 8th and Spring Sts.; cost about \$3000.

Ga., Atlanta.—Wayhouse, Pavilions, etc.—A. M. Gammage and others purchased Cascade Springs, west of Atlanta; will convert into park, erect wayhouse for automobile tourists, pavilions, etc. (See "Land Developments.")

La., Algiers, Station A, New Orleans.—Clubhouse.—Algiers Improvement Association plans to erect clubhouse.

Md., Baltimore.—Clubhouse.—Maryland Country Club, Park Heights Ave., Charles E. Ford, manager of Ford's Opera-house, Fayette St. near Eutaw St., president, will extend locker building, construct dancing pavilion over bowling alleys, install hardwood floors, etc.

Md., Baltimore.—Clubhouse.—Corinthian Yacht Club, Stone House Cove, plans to erect clubhouse at Spring Gardens; R. M. Gray, 830 W. North Ave., chairman of regatta committee.

Miss., Jackson.—Hospital.—Mississippi Baptist Hospital is having plans prepared by John Gaisford, Memphis, Tenn., for hospital building; two stories; brick; 35 beds; signal buttons and telephones; roof garden; laundry in basement; cost about \$100,000. (Previously noted.)

N. C., Charlotte.—Clubhouse.—W. Gould Brokaw of New York will erect clubhouse. (See "Land Developments.")

N. C., Hendersonville.—Hospital.—P. F. Patton, W. A. Smith, W. K. Hall and others are interested in erection of proposed Patton Memorial Hospital; cost \$5000; 10 or 12 rooms; H. C. Meyers of Hendersonville is preparing plans.

S. C., Charleston.—Infirmary.—St. Francis Xavier Infirmary will erect infirmary building to replace present structure.

Tenn., Maryland.—Sanitarium.—Welfare Company, E. B. Truby, secretary, main office, 68 W. Washington St., Chicago, Ill., approved plans for rest sanitarium; cost \$100,000.

Tenn., Memphis.—Clubhouse.—Members of Rex Club are organizing country club and plan to erect clubhouse provided with golf links, tennis courts, etc.

Tex., Dallas.—Bathhouses.—Lake Cliff Park Co., Chas. A. Mangolk, general manager, will erect bathhouses, etc. (See "Miscellaneous Construction.")

Tenn., Nashville.—Fair.—State Fair directors will convert Cumberland Park into recreation park, erect woman's building, pens for stock, fence and auditorium.

Tex., Tyler.—Barns.—Magnolia Petroleum Co., Galveston, Tex., will erect barns, etc. (See "Miscellaneous Enterprises.")

Va., Norfolk.—Stadium.—Lafayette Field Association has plans to erect stadium at Lafayette Park; reinforced concrete; capacity for 15,000 people; bleachers will consist of 14 tiers of seats 23 feet high.

W. Va., Wheeling.—Clubhouse.—University Club is planning to erect clubhouse.

RAILWAY STATIONS

Ala., Mobile.—Louisville & Nashville Railroad, W. H. Courtenay, chief engineer, Louisville, Ky., and New Orleans, Mobile & Chicago Railway, W. F. Owen, general manager, Mobile, reported as having secured option on site for terminal station. Mr. Owen wires Manufacturers Record: "Press reports of terminal station proposed by Frisco system, Mobile, premature."

Ga., Milledgeville.—Georgia Railroad, W. A. Swallow, chief engineer, Augusta, Ga., has plans by company's architect for depot; brick construction.

N. C., Charlotte.—Norfolk Southern Railroad, F. L. Nicholson, chief engineer, Norfolk, Va., plans to erect passenger and freight station.

N. C., Scotland Neck.—Atlantic Coast Line Railway, E. B. Pleasants, chief engineer, Wilmington, N. C., is reported as contemplating erection of passenger depot and to utilize present structure for freight exchange.

Tenn., Chattanooga.—Chattanooga, Rome &

Atlanta Railway, John H. Hill interested, will, it is reported, erect depot.

Tenn., Marshall County.—Lewisburg & Northern Railroad (Louisville & Nashville Railroad), W. H. Courtenay, chief engineer, Louisville, Ky., will erect depots in Marshall county at following points: Holt's Corner, Chapel Hill, East Rock Creek, Verona, Lewisburg, J. T. Davis' farm, Cornersville and probably one between Cornersville and Giles county line.

Tex., Florence.—Bartlett & Western Railroad, C. J. Grainger, vice-president and general manager, Bartlett, Tex., will erect depot.

Va., Blacksburg.—Norfolk & Western Railway, C. S. Churchill, chief engineer, Roanoke, Va., plans to erect depot.

Va., Emory.—Norfolk & Western Railway, C. S. Churchill, chief engineer, Roanoke, Va., plans to erect depot.

SCHOOLS

Ark., Benton.—School Board, C. H. Lewis, secretary, will expend \$5000 to erect high school; 70x70 feet; fireproof construction; hot-water heat; plans by F. W. Gibbs, Little Rock; date of opening bids not set. (Recently noted.)

Ala., Elkmont.—Limestone county will erect high school. Address County Commissioners.

Ala., Florence.—Frank Lockwood, architect, Montgomery, Ala., will receive bids addressed to W. W. Lavender, chairman building committee, until noon February 15 to erect brick dormitory for State Normal College; plans and specifications at office of Dr. James K. Powers, president, Florence, and office of architect at Montgomery.

Ala., Guntersville.—Marshall county will erect high school; cost about \$20,000. Address County Commissioners.

Ark., Argenta.—School Board selected Charles L. Thompson, Little Rock, Ark., to prepare plans for high school; concrete construction; heating and lighting not decided; cost about \$75,000. (Recently noted.)

Ark., Benton.—City is having plans prepared by F. W. Gibb & Co., Little Rock, Ark., for school.

Ark., Fayetteville.—Trustees of University of Arkansas will expend \$30,000 to erect educational building; 96x102 feet; ordinary construction; forced blast ventilating; thermostatic regulation system of heating; plans by Roberts & Martin, Claremore, Okla. (Recently noted.)

Ark., Jonesboro.—School Board plans to issue \$40,000 of bonds to erect high school.

D. C., Washington.—District Commissioners will receive bids until 2 P. M. February 15 to erect manual-training school building No. 172 on O St., between N. Capitol and 1st Sts. N. W.; plans, specifications, forms of proposals, etc., from chief clerk, engineer department, Room 427 District Bldg.; red brick; limestone trimmings; steam heat; gas and electric lights; fireproof; 180x180 feet; cost about \$180,000. (Recently noted.)

Fla., Tampa.—City will expend \$22,000 to erect addition to school; nine rooms; three stories; brick; slate roof; electric lighting; stoves; plans by A. L. Shaw, Tampa. (Recently noted to receive bids until February 4.)

Ga., Marietta.—City contemplates election to vote on \$20,000 bond issue for school improvements; D. W. Blair, chairman of Board of Education.

Ga., Thomasville.—City plans to vote again on \$50,000 bond issue for schools. Address The Mayor. (Recently noted to have defeated issue for similar amount.)

Ga., Valdosta.—State of Georgia will expend \$75,000 to erect buildings for South Georgia Normal College; architect not selected; R. H. Powell, Cartersville, Ga., may be addressed. (Recently noted.)

La., LaSalle.—City is having plans prepared by Stevens & Nelson, New Orleans, La., for proposed Central High School; cost \$30,000.

La., New Orleans.—Bids received until February 7 to erect Live Oak school at Constance and 9th Sts.; two stories and basement; 14 rooms; buff brick; cost about \$90,000; plans by E. A. Christie, New Orleans. (Previously noted.)

La., New Orleans.—Tulane University administrators have plans by James Gamble Rogers, 11 E. 24th St., New York, for H. Sophie Newcomb College buildings as follows: Academic and administration building, music-instruction building, art, household economic, chapel, art gallery, library, students' residence, gymnasium, and power plant and assembly hall building; will erect music, academic and administration, art and students' residence at present; academic building to be four stories; base to comprise first story and surmounted by four Greek

ionic columns; dome in center, with octagonal base; students' residence to be three stories; equipped with lavatories, bathrooms, pantries, kitchen, elevators, etc.; all structures of brick, with stone, marble and terracotta trimmings; tile roof; first four to cost about \$500,000. (Recently noted.)

Md., Carroll, Station D, Baltimore.—Mt. St. Joseph's College, in charge of Xavier Brothers, Frederick Ave. extended, will erect gymnasium; 100x65 feet; brick; dirt floor; bare walls; light from skylight in roof; 15 feet for bowling alleys; 30x15 feet for pool and billiard room; gymnasium 80x50 feet, with 24-foot ceiling; suspended track 14 feet from floor; four rooms, each 20x25 feet, for shower baths, lockers, balcony, etc.

Md., Frederick.—City is having preliminary plans prepared by Parker, Thomas & Rice, Union Trust Bldg., Baltimore, Md., for improvements to North Market St. school; will increase capacity, provide fire-escapes, etc.

Miss., Longview.—Trustees of Otilbelle County High School will expend \$10,000 to erect academic building and dormitory; former, 55x75 feet; latter, 84x48 feet 6 inches; two stories; frame; mill construction; steam heat; electric lighting in both buildings; plans by M. M. Alsop, Houston, Miss.; day labor; W. W. Hall may be addressed. (Recently noted to open bids February 5.)

Mo., Columbia.—University of Missouri is having plans prepared by James P. Jamieson, school architect, for two buildings to be erected within next year; cost \$100,000; also had plans for repairs to other buildings on campus to cost \$15,000; new structures of collegio-Gothic style; stone construction.

Mo., Joplin.—City is considering sites to erect proposed high school provided for in \$250,000 bond issue. Address The Mayor.

Mo., Webster Groves.—Directors of Webster Groves School District, E. S. Healey, president; F. B. Miller, secretary, will receive bids until 8 P. M. February 22 for material and erection of school at Edmondson and Percival Aves.; certified check for \$100, payable to order of School District of Webster Groves; plans and specifications at office of M. P. McArdle, architect, 1104 Chemical Bldg., St. Louis, Mo., or may be had on deposit of \$25.

N. C., Greensboro.—City will have plans submitted by February 15 for grammar school; 19 rooms; ordinary construction; steam heat; cost \$12,000; T. J. Murphy, Mayor. (Bond issue of \$30,000 recently noted to erect school.)

N. C., Newbern.—Trustees Newbern City Graded Schools, T. A. Green, president, will expend \$4000 to erect addition to present school building; 37x64 feet; fireproof construction; heating plant already installed; electric lighting; date of opening bids not set. (See "Machinery Wanted.")

Okla., Ardmore.—School Board will have plans prepared by John B. White, Ardmore, for proposed \$100,000 school.

Okla., Darlington.—Commissioners of Indian Affairs, Washington, D. C., will receive bids until February 20 to furnish material and erect brick school, brick employees' building, frame office; two frame cottages and water and sewerage systems at Cheyenne and Arapaho school; plans, specifications, etc., at offices supervisor of construction, Denver, Col.; the American Contractor, Chicago, Ill.; the Improvement Bulletin, Minneapolis, Minn.; the Times, Oklahoma City, Okla.; the Phoenix, Muskogee, Okla.; the United States Indian Warehouse at Chicago, Ill.; St. Louis, Mo., and Omaha, Neb., and the Builders and Traders' Exchange at St. Paul, Minn., and at the school; for further information apply to the superintendent of the Cheyenne and Arapaho Indian School, Darlington, Okla., C. F. Hauke, acting commissioner.

Okla., Oklahoma City.—City will erect eight proposed schools, as follows: N. Geary Ave. between 2d and 3d Sts., two stories and basement, cost \$37,192; Walker Ave., between 22d and 23d Sts., two stories and basement, cost \$30,000; Washington and Walker Aves., two-story addition, cost \$31,679; Walker Ave. and 7th St., two-story addition, cost \$30,000; in 1500 block on Young's Englewood Addition, two stories and basement, cost \$30,640; in 3400 block on W. 16th St., two stories and basement, cost \$22,217; all to be completed June 1; 36th St. and Georgia Ave., two-story addition, cost \$14,200, to be completed July 1; 12th St. and Everest Ave., two-story addition, cost \$13,280, to be completed March 1. Address The Mayor.

S. C., Clinton.—Presbyterian College, Dr. Davidson M. Douglas, president, will erect additional dormitory; cost about \$30,000.

Tenn., Woodridge.—E. A. Gaylor, County Superintendent of Board of Education, Jacksonboro, Tenn., will receive bids until February

24 to erect school; certified check for 10 per cent. amount of bid; plans and specifications at office of Mr. Gaylor.

Tenn., Maryland.—Welfare Company, E. B. Truby, secretary, 68 W. Washington St., Chicago, Ill., will erect Robert Morris Training School for boys and girls; plans, etc., not determined.

Tenn., Nashville.—American Interchurch College Board purchased site and contemplated, it is reported, erecting building.

Tex., Austin.—City will probably vote on \$150,000 school bonds. Address The Mayor.

Tex., Dallas.—School Board is having plans prepared by William F. Nicol, 515 North Texas Bldg., Dallas, for six four-room school buildings; fireproof construction; electric lighting; cost \$16,000 each; will also install steam heat in several old buildings this summer.

Tex., Canadian.—Canadian Baptist Academy plans to erect dormitory; two stories and basement; steam heat; electric lights; 30 bedrooms, parlors, dining-hall, etc.; cost \$35,000.

Tex., Fort Worth.—L. T. Shanbium, secretary Hebrew Building Committee, states that plans for erecting institute to cost \$50,000 will be deferred until more funds are available. (Recently noted.)

Tex., San Antonio.—School Board approved plans by A. Herrmann, San Antonio, for proposed Alamo Heights primary school at Hondondo and Estes Aves.; two stories; brick and concrete; Spanish style; 128x78 feet; eight classrooms, library and auditorium; hot-air heat; fan system of ventilation; cost \$30,000.

Tex., Tyler.—Smith county voted \$8000 bond issue to erect school in Flint district No. 13. Address County Commissioners.

Va., Farmville.—Farmville Magisterial District will probably vote March 12 on \$25,000 bond issue to erect school. Address District School Trustees.

Va., Portsmouth.—Washington District School Board of Norfolk county will erect school in Washington District to accommodate pupils from Campostella Heights, Norfolk Highlands, Newton Tract and River Park; four rooms; brick; cost \$5000.

W. Va., Harper's Ferry.—Proposals received by Dr. Walter E. Dittmeyer of Harper's Ferry, W. Va., member of Board of Education, until 1 P. M. February 23, to erect school building in accordance with drawings and specifications prepared by Holmboe & Lafferty, Clarksville, W. Va.; copies of drawings and specifications can be seen at store of Dr. Walter E. Dittmeyer on and after February 9, or at offices of architects; certified check for \$500; usual rights reserved; C. E. Tipton, president; D. H. Nichols, secretary. (Recently noted.)

STORES

Ala., Birmingham.—J. D. Lanier will erect two-story frame building at 402 Tuscaloosa Ave., West End; cost \$3000.

Ala., Birmingham.—Colonial Investment Co. will erect business building at 2110 N. First Ave.; cost \$8000.

Ala., Birmingham.—Peter Kantos will erect building at North Third Ave. and 14th St.; one story; brick; cost \$5800.

Ala., Birmingham.—Jemison Real Estate & Insurance Co. (agent) will expend \$24,000 to repair burned structure at 1810 Third Ave.

Ala., Birmingham.—Fowkes & Massey will erect store on Fourth Ave.; four stories; brick; cost \$22,000.

Ala., Dadeville.—Mrs. Nora E. Miller will erect store and hotel. (See "Hotels.")

Ala., Hartselle.—C. C. Doss is receiving bids to erect two stores; brick.

Ala., Ensley.—Dr. E. F. Fields will erect store, moving-picture theater and office building; two stories; brick; plate-glass front on two streets; lower floor for stores and moving-picture theater; upper floor for offices.

Ala., Hartselle.—Hartselle Improvement Co. will expend about \$8000 for improvements to stores.

Ark., Arkadelphia.—R. W. Huie has plans by William Dill, Little Rock, for building; 125x100 feet; 100x100 feet to be used for department store; brick and concrete; composition roof; gas heat; electric lighting; freight elevator; cost \$18,000 to \$20,000. (Recently noted.)

Ark., Little Rock.—Lesser-Goldman Cotton Co. is having plans prepared by Theo. M. Sanders, Little Rock, for commercial block at 2d and Cumberland Sts.; 140x80 feet; three stories, 25x80 feet, and offices; fireproof; steam heat; electric lights; brick.

Ark., Little Rock.—D. F. S. Galloway selected Charles L. Thompson, Little Rock, to

prepare plans for building to contain two or three stories; 100x140 feet; plans not made; architect may be addressed. (Recently noted.)

D. C., Washington.—Harry Wardman, 1342 New York Ave. N. W., will erect 12 stores on Sherman Ave. N. W.; cost \$12,000. (See "Dwellings.")

Fla., Jacksonville.—A. G. Rhodes will erect two-story brick building on Florida Ave., between Beaver and Albert Sts.

Fla., Ocala.—C. S. Cullen will erect business building; brick construction.

Fla., Sanford.—J. L. Miller will erect business block; two stories; brick; lower floor for stores; upper floor for offices.

Fla., Mulberry.—W. C. Harris will erect store and office building; lower floor for stores; upper floor for offices.

Fla., Tampa.—Falk Bros. will erect, it is reported, business building on Cass St.

Ga., Atlanta.—A. J. Boswell will erect store, office and apartment building; three stories; cost \$10,000; lower floor for stores; upper floors for offices and apartments.

Ga., Atlanta.—J. B. Massell will erect three-story brick building on E. Hunter St.; site 30x80 feet; cost \$12,000.

Ga., Vidalia.—J. R. Morris will erect four brick stores.

Ky., Louisville.—William Heyburn will erect five stores on 4th St.; one story; cost \$15,000.

Ky., Pembroke.—Gill Smith will erect building to replace structure recently reported burned.

Ky., Pembroke.—W. H. Jones will rebuild two structures. (Recently reported burned.)

Ky., Pembroke.—E. B. Ledfor will rebuild structure recently reported burned.

La., Lake Charles.—Bids received by Leon Sugar through E. W. Phillips, architect, 17 Kaufman Bldg., Lake Charles, until February 5 to erect two-story brick building on Broad St. between Ryan and Bilbo Sts.; plans and specifications at architect's office.

Mo., St. Louis.—Joseph A. Arthur A. and Louis Rossier will erect store and apartment building at Jefferson and Market Sts.

N. C., Charlotte.—J. J. Melsenheimer of Charlotte and W. M. Paul of New York are reported as to erect department-store building at Trade and Church Sts.

N. C., Marshall.—Mrs. J. W. Hasty will open bids about March 1 to rebuild store; 20x70 feet; ordinary construction; brick; glass front. (Recently reported burned.)

N. C., Rocky Mount.—E. Epstein will erect building to replace recently-burned structure; two stories; all glass front on first floor; 55x51 feet; ordinary construction; cost \$8000; heating to cost \$300; plans by J. C. Stout, Rocky Mount.

S. C., Columbia.—Dr. L. B. Owens will, it is reported, erect store and apartment building on Main St.; three stories; brick; site 30x130 feet; lower floor for stores; upper floors for apartments.

S. C., Charleston.—D. C. Barbot, architect, 26 Broad St., Charleston, will receive bids until noon February 15 to erect three-story brick building for Atlantic Paint Co. at 307 Meeting St.; plans, specifications, etc., from architect as above.

S. C., Charleston.—W. G. McInnes will erect building at 57 Queen St.; cost \$3000.

Tenn., McEwen.—Lafayette Williams of Williams Hardware Co. will erect store and lodge building; two stories; concrete; lower floor for store; upper floor for lodgerooms.

Tenn., Sharon.—Moore & Etheridge, J. A. Wilson and O. R. Beard will probably award contract to J. E. Reding Co-operative Brick Mason to erect business block to replace buildings recently burned; 100x80 feet; heating undecided; gasoline lighting; cost \$3000 each.

Tex., Beaumont.—W. C. Tyrrell, 1347 Calder Ave., will open bids about February 10 to erect proposed store and lodge building; 50x134 feet; plans by F. W. Steinman, Beaumont.

Tex., Cuero.—R. C. Flick has plans by Julius Leffland, Victoria, Tex., for store building; 52x125 feet; two stories; cost \$12,000; date of opening bids not set. (Recently noted.)

Tex., Covington.—J. L. Cowan will erect business building; brick.

Tex., Dallas.—W. A. Fraser will erect building at 409 N. Ervay St.; two stories; brick; cost \$22,000.

Tex., Galveston.—O. L. White will erect business building; one story; brick; cost \$5000.

Tex., Houston.—M. E. Foster will open bids February 10 to erect stores and apartments; plans by C. D. Hill & Co., Houston. (Recently noted.)

Tex., Orange.—E. W. Brown will erect concrete building to replace structure reported burned.

Tex., Jarrell.—Cornhill Mercantile Co. will erect business building; brick.

Tex., Jarrell.—Condra Bros. will erect business building; brick.

Tex., Rockdale.—J. W. Perry will erect business building; two stories; concrete blocks; lower floor for stores; upper floor for offices.

Tex., Tona.—R. L. Spivey will rebuild store; 100x30 feet. (Recently reported burned.)

Va., Richmond.—Richard Moore will erect store building; three stories; brick.

Va., Richmond.—H. Seldon Taylor will erect store building; three stories; brick.

Va., Richmond.—Henry S. Wallerstein is having plans prepared for two stores, with lodgerooms for Fraternal Order of Eagles on upper floors; three stories; brick.

Va., Richmond.—J. Edward Redford will erect two-story detached store and dwelling at 1715 Hull St.; cost \$3500.

West Virginia.—U. B. Buskirk, Quicksand, Ky., is having plans prepared by Smith Bros., Huntington, W. Va., for store building; 129x70 feet; address owner. (Recently reported burned.)

W. Va., Bluefield.—Independent Order of Odd Fellows and Improved Order of Red Men will erect lodge and business building. (See "Association and Fraternal.")

W. Va., Northfork.—L. G. Toney & Co. will rebuild store and hotel building recently reported burned. (See "Hotels.")

W. Va., Petersburg.—M. A. Finn of Perkinson & Finn will erect business buildings and garage at 2d and Hollingsbrook Sts.; will also erect building for Coca-Cola Bottling Works at Lombard St. and Jail Al.

THEATERS

Ala., Ensley.—Dr. E. F. Fields will erect store, theater and office building. (See "Stores.")

Md., Baltimore.—Committee, of which Edwin J. Turnbull, 12 E. Lexington St., is chairman, will consider plans presented by J. B. Noel Wyatt of Wyatt & Nolting, Keyser Bldg., Baltimore, for proposed opera-house.

Tenn., Nashville.—Bonita Amusement Co. organized by William H. Wassman and others; has plans by Marr & Holman, Nashville, for motion-picture theater at 214 Fifth Ave.; seating capacity about 400; completion by March 15; construction under supervision of architect.

Tex., Galveston.—Texas Amusement Co., A. L. Scudder, secretary, will expend \$25,000 to erect theater; 42 feet 10 inches by 130 feet; mill construction; heating and lighting undecided; plans by I. A. Walker, Galveston; recently noted to receive bids until February 10. (See "Machinery Wanted.")

Va., Lynchburg.—Academy of Music Com-

pany will erect theater; plans not determined; architect not selected. (Company organized by C. M. Guggenheimer and others.)

Va., Lynchburg.—Trenton Theater, Inc., will remodel theater; enlarge stage; provide U-shaped balcony, etc.; proposed seating capacity 1500, exclusive of boxes.

W. Va., Elm Grove.—John A. Zarnitz of Cleveland, O., will make extensive improvements to Nickelodeon.

WAREHOUSES

Ala., Liverpool (not a postoffice).—W. M. Blount (president of Birmingham & South-eastern Railway), Union Springs, Ala., and others will erect cotton warehouse; reinforced concrete; capacity 5000 bales. (See "Land Developments.")

Ark., Pocahontas.—Marcus-Berger Wholesale Grocery Co. of Imboden, Ark., will enlarge present structure and erect additional warehouses.

Fla., Tampa.—Flynn-Harris-Bullard Company has plans by F. J. Kennard to erect warehouse; one story; 130x125 feet.

Ga., Savannah.—Central of Georgia Railroad, C. K. Lawrence, chief engineer, is reported as to erect fertilizer warehouses; cost about \$109,000.

Ga., Savannah.—Central of Georgia Railway, C. K. Lawrence, chief engineer, Savannah, will, it is reported, erect fertilizer warehouses; cost \$100,000.

Ky., Lexington.—Luther Stivers is promoting erection of loose-leaf tobacco warehouse and also plant to manufacture plug and smoking tobacco; warehouse to be brick; Kentucky limestone foundation; system of skylights; cost \$75,000.

Ky., Louisville.—T. P. Taylor has plans by Loomis & Hartman, St. Louis, for warehouse; cost \$10,000.

Md., Baltimore.—Carnegie Steel Co., Pittsburgh, Pa., is having preliminary plans made by Baltimore Bridge Co., Bush St. and B. & O. R. R., Baltimore, for warehouse; about 300x300 feet; one story. (Recently referred to under "Foundry and Machine Plants.")

Mo., St. Louis.—J. D. Goldman will erect warehouse at 303-05 South Wharf; cost \$12,000.

Mo., St. Louis.—Cook Motor Vehicle Co. will erect warehouse at 5187-95 Delmar Ave.; one story; cost \$8500.

Tenn., Memphis.—Memphis Warehouse Co. will build additional warehouses. (See "Cotton Compresses and Gins.")

Tex., Texas City.—Texas City Transportation Co. is reported as to expend about \$2,000 to construct freight pier and four warehouses, etc.; warehouses to have concrete walls; steel frame; tile roof; concrete floor; fireproof; cost several thousand dollars each. (Previously noted to make various improvements.)

Tex., Tyler.—Magnolia Petroleum Co., Galveston, Tex., will erect warehouses, etc. (See "Miscellaneous Enterprises.")

BUILDING CONTRACTS AWARDED

APARTMENT-HOUSES

Ga., Savannah.—I. E. Richards awarded contract to Madrid Cox, Savannah, to erect six apartment-houses on Abercorn St. between 5th and 38th Sts.

La., New Orleans.—Dr. E. A. Jurgelwelez awarded contract to John Hood & Co., New Orleans, to erect apartment-house; three stories; pressed brick; cement trimmings; steam heat; electric lights; marble stairways and vestibule; cost \$27,000; plans by Keenan & Weiss, New Orleans.

Md., Baltimore.—Dr. William B. Finney, 813 Hamilton Ter., awarded contract to John S. Moke, 1825 W. Baltimore St., to repair apartment-house at 813 Hamilton Ter.; cost about \$8000. (Recently reported burned.)

Mo., Kansas City.—Gillham Hall Investment Co., 304 Commerce Bldg., awarded contract to Jones-Weaver Construction Co., 304 Commerce St., Kansas City, to erect proposed apartment-house; 266x44 feet; three stories and basement; semi-fireproof construction; cost \$85,900; plans by Roger Gillham, Gloyd Bldg., Kansas City.

Tex., Houston.—G. H. Herman will expend \$80,000 to erect apartment and garage for G. W. Hawkins Company; contract recently noted awarded. (See "Motors and Garages.")

Va., Richmond.—W. Creed Davis awarded contract to George D. Priddy, Richmond, to erect apartment building to cost \$30,000; 55x110 feet; mill construction; cost of heating \$2500; cost of lighting \$800; plans by Carneal & Johnson, Richmond. (Recently noted.)

ASSOCIATION AND FRATERNAL

Ark., Little Rock.—Order of Mystic Shrine, Ancient Free and Accepted Masons, awarded contract to Thalman & Reid, Little Rock, to remodel Albert Pike consistory at 8th and Scott Sts.; cost \$80,000; wiring, heating and plumbing to cost about \$20,000 additional; plans by Charles L. Thomson, Little Rock.

BANK AND OFFICE

Md., Baltimore.—Pennsylvania Railroad Co. awarded contract to Milton C. Davis, 15 E. Fayette St., Baltimore, to erect lavatory and office; 16x80 feet; ordinary construction; steam heat; electric lighting; cost \$4500. (Mr. Davis previously noted to have contract for \$7000 building.)

Okla., Oklahoma City.—James M. Weaver, 545 Delta Ave., Cincinnati, O., will expend \$25,000 to erect office and store building; contract recently noted awarded to Gross Construction Co., Oklahoma City, Okla. (See "Stores.")

S. C., Sumter.—City National Bank awarded contract to W. Lee Harbin, Lexington, N. C., to erect 7-story office building; 35x65 feet; cost \$60,000; plans by Wheeler & Stern, Charlotte, N. C. (Previously noted.)

CHURCHES

Ark., Marianna.—Methodist congregation awarded contract to erect proposed edifice; cost \$50,000. Address The Pastor, Methodist Church.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Tex., Flatonia.—Catholic congregation awarded contract to A. F. Koch & Sons, Flatonia, to erect edifice.

Tex., Flatonia.—Catholic congregation awarded contract to A. F. Koch, Flatonia, to erect edifice.

CITY AND COUNTY

Ark., Cotton Plant—Jail.—Woodruff County Commissioners will expend \$6200 to erect jail; 25x33 feet; fireproof construction; plans by Pauly Jail Building Co., St. Louis, Mo.; contract recently noted awarded to William Bengel, Newport, Ark.

Okl., Hobart.—Library.—Carnegie Library Association awarded contract to J. R. Creasey, Hobart, to erect Carnegie Library. (Previously noted.)

DWELLINGS

Fla., Dunedin.—H. Summerville awarded contract to A. J. Barnes, Dunedin, to erect residence.

Fla., Dunedin.—W. McClure awarded contract to A. J. Barnes, Dunedin, to erect residence.

Fla., Jacksonville.—S. S. Goldsberry, 1205 Walnut St., awarded contract to Thomas Eastmore, 2112 Hubbard St., Jacksonville, to erect proposed dwellings; 28x65 feet and 36x56 feet; two stories; ordinary construction; electric lighting; cost \$4500; plans by Gould T. Butler, Jacksonville.

Fla., Tampa.—Mrs. L. L. Hunter awarded contract to Mr. Miller, Tampa, to erect \$3000 bungalow at Seminole Heights.

Md., Baltimore.—Dr. Theo. Cooke, 914 N. Charles St., awarded contract to Joseph C. Hobbs, 1945 E. 31st St., Baltimore, to erect 10 dwellings in 3100 block of Harford Rd.; two stories; brick; 16x68 feet; slag roof; hot-water heat; cost \$22,000.

Md., Baltimore.—Mortimer W. West, 6 E. Lexington St., awarded contract to Walter F. Hidy, 5233 Charles Rd., Baltimore, for three dwellings on Kate Ave. west of Granada Ave.; two and a half stories; frame; slate roofs; verandas on three sides; cost \$8000.

Md., Edgewood.—W. R. Tuckerman, Union Trust Bldg., Washington, D. C., will expend \$11,000 to erect dwelling; 55x60 feet; terra-cotta; wood floors; steam heat; plans by Boal & Brown, 1725 H St. S. W., Washington; contract recently noted at Washington, D. C.) awarded to Page Construction Co., 304 Hibbs Bldg., Washington.

Md., Timonium.—Henry C. Merryman awarded contract to John Cowan, 106 W. Madison St., Baltimore, Md., to erect residence on Timonium Rd.; two and a half stories; terra-cotta hollow tile; shingle roof; concrete foundation; hardwood and oak interior finish; plans by James S. Nusser, Jr., 415 Professional Bldg., Baltimore, Md.

Mo., St. Louis.—Mitchell-Clay Manufacturing Co. awarded contract to J. W. Havens, 2020 McCausland Ave., St. Louis, to erect dwelling; 35x24 feet; ordinary construction; brick; hot-air heat; cost \$3300; plans by William J. Beattie, St. Louis. (Recently noted.)

S. C., Greenville.—R. I. McDavid awarded contract to Charles Koeckle to erect dwelling; cost \$10,000; plans by Park A. Dallas, Atlanta, Ga. (Recently noted.)

Tex., Bryan.—L. A. Hamilton awarded contract to C. E. Jenkins, Bryan, to erect residence; two stories; colonial.

Tex., Dallas.—O. A. Teal, 5110 Crutcher St., awarded contract to W. R. Ligon to erect dwelling; 8 rooms; two stories; cost \$3500; plans by owner. (Recently noted.)

Tex., Houston.—Walter F. Brown awarded contract to T. H. Grounds & Son, Paul Bldg., Houston, to erect dwelling; 7 rooms; frame; stucco exterior; cost \$5000; plans by G. W. Callignon, Paul Bldg., Houston. (Recently noted.)

Tex., Jarrell.—J. A. Buchanan awarded contract to G. R. Woodward, Jarrell, to erect residence.

Tex., Jarrell.—J. A. Buchanan awarded contract to G. R. Woodward, Jarrell, to erect residence.

Tex., Taylor.—Dr. R. E. Bledsoe will expend \$6000 to erect dwelling; 34x56 feet; wood; hot-air heat; electric lighting; plans by H. Struve; contract recently noted awarded to G. B. Brieger, Taylor. (See "Machinery Wanted.")

Va., Staunton.—L. S. Dickenson will erect residence on West Frederick St.; cost \$4000; 36x50 feet; hot-water heat; gas and electric lighting; plans by R. A. Myer, Staunton; contract awarded to G. W. Fretwell, Staunton.

GOVERNMENT AND STATE

S. C., Gaffney.—Postoffice.—Treasury Department, James Knox Taylor, Supervising Architect, Washington, D. C., awarded contract to Newport Contracting & Engineering Co., Newport News, Va., to erect postoffice; 62x71 feet; fireproof; steam heat; electric lighting; cost \$47,000. (This company lately noted as lowest bidder.)

HOTELS

Mo., Kansas City.—A. Krekel, 703 Victor Bldg., awarded contract to Gilsonite Construction Co., Commercial Bldg., Kansas City, to erect hotel; 100x56 feet; six stories; vacuum system of steam heat; electric lighting; cost \$100,000; plans by Edwards & Sunderland, Kansas City. (Recently noted.)

Tex., El Paso.—E. Paso Hotel Co. awarded contract to Fred A. Jones Building Co., Dallas, Tex., to erect Paso del Norte Hotel at W. San Antonio and El Paso Sts.; 108x134 feet; white glazed terra-cotta; nine stories; steel and concrete construction; lobby 40x60 feet, two stories finished in white marble; about 300 rooms; 22 baths on each floor; dining-room 45x60 feet, two stories; beamed ceiling; glass enclosed roof garden; cold-storage plant, laundry and heating plant in basement; elevators; cost about \$700,000. (Previously noted.)

MISCELLANEOUS

Md., Baltimore.—Restaurant.—Monumental Brewing Co., 3900 E. Lombard St., awarded contract to J. Henry Miller, Inc., 108 Dover St., Baltimore, to erect restaurant building at 36 S. Eutaw St. and remodel adjoining structure at 38 S. Eutaw St. and connect with same; new structure 16x74 feet; two stories; cost \$4000. (Recently noted.)

Miss., Meridian.—Clubhouse.—C. M. Rubush has contract to erect Stonewall Clubhouse; three stories and basement; brick veneer; tile roof; cost \$25,000; to be completed by September 1.

S. C., Columbia.—Hospital.—Dr. A. B. Knowlton awarded contract at \$26,900 to Frank B. McNulty, Columbia, to erect hospital and at \$1800 to Guilmartin & Co., Columbia, for heating; four stories, including basement; 35 rooms; will award elevator contract later; plans by J. H. Sams, Columbia. (Recently noted.)

RAILWAY STATIONS

Tex., El Paso.—Texas & Pacific Railway Co., B. S. Wathen, chief engineer, Dallas, Tex., awarded contract to J. W. Thompson, St. Louis, Mo., to erect freight offices and shed; 54x316 feet; fireproof; brick, concrete and steel; steam heat; cost \$38,000. (Recently noted.)

SCHOOLS

La., Jonesboro.—Parish School Board awarded contract at \$14,950 to Falls City Construction Co., Louisville, Ky., to erect proposed high school.

N. C., Durham.—Trinity College awarded contract to N. Underwood, Durham, to erect west dormitory; replica of east dormitory; completion by September 1; Hook & Rogers, architects, Charlotte, N. C. (Previously noted.)

N. C., Kinston.—Executive Committee of Directors of State School for Feeble-minded awarded contract at \$48,465 to York & Cobb, Raleigh, N. C., to erect two dormitories and central building; plans by Hook & Rogers of Charlotte, N. C., and C. E. Hargreave of Raleigh, N. C.; two stories; brick; slate roof. (Recently noted.)

N. C., Wilmington.—New Hanover County Board of Education awarded contract at \$13,146 to Rhodes & Underwood, Wilmington, to erect Isaac Bear Memorial School; at \$865 to W. R. Dasher, Wilmington, for plumbing; six classrooms, auditorium, playrooms, etc.; brick; plans by J. F. Leitner, Wilmington. (Recently noted.)

Tenn., Collierville.—Shelby County Commissioners awarded contract to J. A. Anderson, Memphis, Tenn., to erect school building; two stories; steam heat; cost \$25,000; plans by Jones & Furlinger, Memphis, Tenn. (Previously noted.)

Tex., Bryan.—Ursuline Sisters awarded contract to C. E. Jenkins, Bryan, to erect annex to Ursuline Convent; three stories; brick; 119x46 feet.

Tex., Texline.—School Board awarded contract to Bone & Parr, Amarillo, Tex., to erect school; 58x72 feet; two stories; brick; semi-fireproof construction; metal ceilings; galvanized shingle roof; cost \$11,500. (Recently noted.)

Va., Abingdon.—Trustees of Martha Washington College awarded contract at \$21,000 to L. A. Gaylon of Knoxville, Tenn., to erect

four-story dormitory building; plans by Baumann Bros., Knoxville, Tenn. (Lately noted.)

Va., Portsmouth.—School Board awarded contract at \$19,527.72 to C. M. Mayor to erect school at Jefferson and 5th Sts.; plans by C. M. Robinson of Richmond, Va.

STORES

Ala., Cullman.—John Link awarded contract to W. A. Schlosser, Cullman, to erect business building; two stories; brick.

Ark., Fort Smith.—A. A. Pantet awarded contract to R. W. Campbell to erect store on Rogers Ave.; 25x100 feet; fireproof; two stories.

Ga., Atlanta.—A. J. and H. F. West awarded contract to A. B. Ferrell, Atlanta, to erect three stores on Marietta St. between Bellwood and Bass Aves.; two stories; brick; cost \$2500 each.

Ga., Gainesville.—M. C. Brown awarded contract to John A. Pierce, Gainesville, to erect store building; 47x162 feet; two stories, to be 15x12 feet; ordinary construction; plate-glass front, copper frames, steel beams, cast-iron columns, electric fixtures; rolling shelf ladders. (Recently noted.)

Mo., Kansas City.—Bahr Furniture Co., 1115 E. 18th St., awarded contract to Charles Cole, Kansas City, to erect store; 48x125 feet; fireproof construction; natural-gas heat; gas and electric lighting; cost \$9000; plans by Clifton B. Sloan, St. Louis and Kansas City, Mo. (Recently noted.)

Okl., Oklahoma City.—James M. Weaver, 545 Delta Ave., Cincinnati, O., will expend \$25,000 to erect store and office building; two stories; 50x140 feet; vitrified brick and stone; plans by J. W. Hawk, Oklahoma City; contract recently noted awarded to Gross Construction Co., Oklahoma City.

Tex., Cuero.—William Wagner awarded contract to erect business building; brick.

Tex., Marlin.—Frank Peacock awarded contract to erect two business buildings on Winter St.; two stories; 46x35 feet; brick.

Tex., Runge.—Gerhardt & Nusom awarded contract to Bolton & Stephenson, Floresville, Tex., to erect store building; 50x100 feet; semi-fireproof construction; cost \$9000; plans by J. Henry Yentzen. (Recently noted.)

Tex., Yoakum.—J. B. Harris awarded contract at \$4400 to Fuess & Son to erect store on Lott St.; 45x46 feet; glass front; glazed brick.

Tex., Yoakum.—J. B. Harris awarded contract to Fuess & Son, Yoakum, to erect store building; 45x46 feet; front practically solid glass and trimmed in glazed brick.

THEATERS

Md., Baltimore.—Joseph Brodie, 1118 Light St., awarded contract to Foreman Construction Co., 402 Law Bldg., Baltimore, to erect theater at 1118 Light St.; two stories; ornamental facade of granite and copper; seating capacity, 450; cement flooring; fireproof; cost of construction, \$10,000. (Previously mentioned.)

WAREHOUSES

Md., Baltimore.—Peter Heffner, 303 Frederick Ave., awarded contract to James E. Phelps, 2140 W. Baltimore St., Baltimore, to erect garage and storage warehouse at 203-05 Frederick Ave.; two stories; brick; 25x52 feet; plans by F. E. Beall, 213 St. Paul St., Baltimore.

Md., Baltimore.—Charles J. Bonaparte, 216 St. Paul St., awarded contract to John Cowan, 106 W. Madison St., Baltimore, to erect office and warehouse building for American Express Co. (See "Bank and Office.")

Tex., Houston.—B. A. Riesner, 815 Commerce St., awarded contract to C. H. Winn to erect wholesale liquor house; mill construction; hand elevator; cost \$6500; plans by Cooke & Co., Houston. (Recently noted.)

Tex., Port Aransas.—Texas Channel & Dock Co. awarded contract to erect warehouse, etc., on Harbor Island. (See "Miscellaneous Construction.")

RAILROAD CONSTRUCTION

RAILWAYS

Ala., Birmingham.—The C. G. Kershaw Contracting Co. of Birmingham is reported to have been awarded contract for the Hartselle cut on the second track work of the Louisville & Nashville Railroad about 60 miles from Birmingham.

Ala., Blount Springs.—Thrasher & Gunter of Knoxville, Tenn., are reported to have been awarded a contract by the Louisville & Nashville Railroad for two large tunnels and about 15 miles of grade on the new double-track work at Blount Springs, Ala.

Ala., Boaz.—Charter is reported granted to the Birmingham & Chattanooga Railroad Co., for which application was made some time ago. J. M. Spradlin of Boaz, Ala., is president; W. W. Shortridge of Albertville, Ala., is vice-president and secretary. (See Manufacturers Record December 7 and December 14, 1911.)

Ala., Fayette.—Woodson Hopkins of Henderson, Ky., is reported, is engineer for the six-mile railroad which Lee Baskett of that place is building down Sipsey River from Fayette, Ala.

Ala., Mobile.—The Frisco System and the Louisville & Nashville Railroad, which control the New Orleans, Mobile & Chicago Railroad, are reported to have taken options on two blocks of water-front property in Mobile and propose to erect a large terminal. W. F. Owen, Mobile, Ala., is vice-president and general manager of the N. O., M. & C.

Ark., Marianna.—F. S. Yantis of Paragould, Ark., is reported planning the construction of a railroad from Marianna via Moro to Brinkley, Ark., about 25 miles. Such a line was proposed several years ago.

Ark., Pine Bluff.—The Anderson & Saline River Railroad is reported to have made a proposition to build a line from Pine Bluff southward to Leola on the Rock Island lines. J. S. Bell, Pine Bluff, Ark., is chief engineer.

Ark., Rogers.—The Kansas City & Memphis Railway Co. is reported to have completed track on 14 miles of line southeast via Fayetteville. The W. R. Felker Construction Co. is the contractor. M. Hayes, Rogers, Ark., is the chief engineer.

D. C., Washington.—T. J. Moore, of Anacostia says that the East Washington Suburban Railway is designed to connect at Suitland, Md., with a proposed road which has a charter in Maryland, and will run from the Anacostia Railroad at Good Hope Rd. to the District of Columbia boundary. Organization has not progressed sufficiently to give details.

Fla., Brooksville.—An officer of the Atlantic Coast Line is reported saying that it will apply for charter to build a cut-off line from Brooksville to Trilby, Fla., about 15 miles. E. B. Pleasants, Wilmington, N. C., is chief engineer.

Fla., Inverness.—Reported that the West-Coffey interests will extend their lumber railroad about five miles to Brooksville, Fla.

Fla., Tampa.—President C. H. Brown of the Tampa & Gulf Coast Railway, Tampa, Fla., says that the proposed extension is 16 miles from Key Stone to Tampa, which will include two small bridges and one large bridge. R. F. Bettis of Tampa is chief engineer.

Ga., Augusta.—A. W. Anderson, general manager of the Charleston & Western Carolina Railway of the Atlantic Coast Line system, is quoted saying that surveys are being made to revise curves and grades to increase the traffic capacity of the road. Expenditures may reach \$3,000,000 or more. E. B. Pleasants, Wilmington, N. C., is chief engineer.

Ga., Gainesville.—Contractors have completed eight miles of grade on the Gainesville & Northwestern Railroad, which is being built by the Byrd-Matthews Investment Co. of St. Louis, and work is proceeding rapidly.

Ky., Louisville.—Press reports that the Louisville & Nashville Railroad had let contract for the Moore's branch and upper Kentucky River extensions near Whitesburg, Ky., and that the Wasilot & Black Mountain line would be extended to the head of the Cumberland River are denied by the company. Such work is not contemplated now.

Ky., Paducah.—President H. C. Rhodes of the Kentucky Southwestern Electric Railway, Light & Power Co., says it is expected to soon have all preliminary work in shape to submit to financiers on the proposed line. Major W. A. Calhoun of Buffalo, N. Y., is consulting engineer. The plans contemplate the construction of 210 miles of railways in three divisions. John D. Smith is secretary.

Ky., Paducah.—Engineers are reported at Paducah perfecting plans for the proposed Ohio River bridge of the Kentucky & Illinois Bridge Co., backed by the Burlington system, the Frisco, the Louisville & Nashville and the Illinois Central railroads. W. L. Breckinridge, Chicago, Ill., engineer in charge of way for the Burlington, can give information.

Ky., Paducah.—The Chicago, Paducah & Thebes Railroad Co. is chartered in Illinois to build from Danville to Metropolis, and thence over the Ohio River into Kentucky.

reaching Paducah. Incorporators, Paul A. Schaffly, N. P. Murray, Jr., Walter S. Louder, E. P. Kaschner and Harry A. Hornberg. All of East St. Louis, Ill. Others mentioned are A. M. Beckwith, W. R. Brown and W. E. Beckwith of the same place. The Gulf Line Connecting Railroad Co. is also reported chartered by some of the said parties.

La., Napoleonville.—Reported that a railroad is under construction from Donner northward to Napoleonville, about 14 miles, and that six miles have been completed. The Mayor of Napoleonville may be able to give information.

La., New Iberia.—The Southwestern Traction & Power Co. is reported to have begun construction of its line from New Iberia to Jeanerette, and several miles of grade are done. F. W. Crosby is vice-president and general manager.

La., New Orleans.—A. F. Barclay, assistant engineer Public Belt Railroad Commission, says that the yard to be built between Market and Henderson Sts. is small and will have a capacity of 100 cars.

Md., Baltimore.—The Pennsylvania Railroad Co. has requested bids for the construction of concrete bridges across the Back and Bush rivers in Baltimore and Harford counties, respectively, but the work has not yet been authorized. A. C. Shand is chief engineer at Broad St. Station, Philadelphia.

Md., Baltimore.—It is understood that the directors of the Western Maryland Railway Co. have approved the expenditure of approximately \$2,500,000 for the second track, passing sidings and other improvements described in the Manufacturers Record January 11. H. R. Pratt, Baltimore, is chief engineer.

Md., Brandywine.—Henry W. Watson of Philadelphia, president of the Washington, Potomac & Chesapeake Railway, J. Kemp Bartlett of Baltimore and R. V. Matthews of New York, the latter, it is said, representing a syndicate, are advocating a bill before the Maryland Legislature to extend the charter of the road, which, it is asserted, will be completed by French capitalists with an expenditure of \$2,000,000. Mr. Watson's address is Franklin Bank Bldg., Philadelphia.

Md., Hagerstown.—The Hagerstown Railway Co., owning and operating electric railways in this (Washington) county and adjacent counties, is reported contemplating improvements, having changed hands. Henry Holzappel of Hagerstown, Md., is president.

Miss., Gulfport.—The Frisco system and the Louisville & Nashville Railroad, it is reported, contemplate building from Beaumont, Miss., to Pass Christian, about 60 miles, to enable trains of the New Orleans, Mobile & Chicago Railroad, which they jointly control, to enter New Orleans via the L. & N.'s line. W. F. Owen, Mobile, Ala., is vice-president and general manager of the New Orleans, Mobile & Chicago road, which would build the extension if it is made.

Miss., Meridian.—J. T. Schley, representing Macartney & Schley, bankers, of Mobile, Ala., is quoted saying that the firm has acquired the Meridian & Memphis Railway Co. and will immediately begin construction of the proposed line from Meridian to Union, Miss., about 50 miles northwest on the New Orleans, Mobile & Chicago Railroad. The line was chartered last August by S. A. Neville, C. F. Scofield and others of Meridian, Miss. On February 27 Meridian will vote on \$50,000 of bonds to aid it.

Miss., Natchez.—Charter for the proposed Natchez-Eastern Railroad will, it is reported, be filed immediately. Incorporators are W. M. Cornell, Meridian, Miss.; Henry Yeager, Jackson, Miss.; M. P. Finnegan, Rose Hill, Miss. About 340 miles are projected. Much of the route will be like that proposed by the old Mississippi Western Railway Co., which was promoted several years ago. The main line is from Natchez east to Gallman, Mendenhall, Loun and Meridian, with a branch north from Raleigh to Forest and Carthage, Miss. West from Natchez it may finally extend to Baton Rouge, La.

Mo., Bismarck.—The Bismarck, Bellevue Valley & Western Railway Co., it is reported, will begin construction in May. E. E. Evans, president of the line, and Grant Wyatt, president of a construction company, are reported locating the line from Bismarck.

Mo., Poplar Bluff.—The Morgan Engineering Co., Goodwyn Institute Bldg., Memphis, Tenn., says that all bids were rejected for the Butler County Railroad and that contract will be let probably at private sale. Contractors should address the Butler County Railroad Co. at Poplar Bluff, Mo.

Mo., St. Louis.—The Chicago, Burlington & Quincy Railroad is reported to have begun clearing the site for its proposed freight terminal addition at 2d and Carr Sts. W. L.

Breckinridge, Chicago, Ill., is engineer maintenance of way.

N. C., Black Mountain.—Two miles of line have been graded on the Mount Mitchell Railway, which is being built from Black Mountain Station, on the Southern Railway, into the mountains for a distance of over 14 miles. Dickey & Campbell are the owners.

N. C., Charlotte.—The Southern Railway is making surveys from Charlotte southward for second tracking. Second track is already being built from Cross Keys to Duluth, Ga., about 15 miles, and from Suwanee to New Holland, Ga., about 25 miles. W. H. Wells, chief engineer of construction, who gives this information, denies a recent press report that second track was being built from Gainesville, Ga., to Charlotte, N. C. No work is being done north of New Holland.

N. C., High Point.—Contract is reported let by the Southern Railway to M. E. Elkan of Macon, Ga., for its proposed belt line at High Point, N. C., one and a half miles. Lacy Moore is engineer in charge. W. H. Wells, Washington, D. C., is chief engineer of construction.

N. C., Newbern.—The Norfolk Southern Railroad is reported to have purchased land for an extension of its shifting yard. F. L. Nicholson, Norfolk, Va., is chief engineer.

N. C., Raleigh.—The Raleigh, Charlotte & Southern Railroad Co., which proposes to make the extension of the Norfolk Southern Railroad, is reported organized with directors thus: E. T. Lamb, Norfolk; Frederick Huff and W. A. Chadbourne, New York; Caldwell Hardy, Norfolk, and E. C. Duncan, Raleigh. Mr. Lamb is president, Mr. Duncan first vice-president and Mr. Huff second vice-president. Mr. Lamb is also president of the Norfolk Southern. F. L. Nicholson, chief engineer of the latter, occupies a similar position with the new company.

N. C., Scotland Neck.—The press report that the Southern Railway would build a line from Hamilton via Scotland Neck to Littleton is denied.

S. C., Columbia.—W. Boyd Evans of Columbia writes that B. L. Abney and others have had introduced in the General Assembly a bill to charter the Columbia & Camden Railway Co. to build an electric line which will be about 30 miles long.

N. C., Wilmington.—The Hanover Construction Co. of Wilmington is reported chartered with \$50,000 capital to build railways, etc. J. L. Von Glahn and others are stockholders.

Okla., Beaver.—F. C. Tracy, one of the directors, says that the Beaver, Meade & Englewood Railway Co. will build 38 miles of line from Beaver, Okla., to Meade, Kans., and 44 miles from Beaver to Englewood, Kans., the latter line, however, being not subject to immediate consideration. Route level. It is contemplated to build next summer seven miles to a connection with the Wichita Falls & Northern Railway and to make further extension later. Other directors are J. W. Webb, F. Laughlin, L. S. Munsell, R. McFarland, W. T. Quinn and E. Clift.

Okla., Tulsa.—J. S. Worley of Worley & Black, engineers, Kansas City, Mo., and George Simons, representing Gubboy & Co., bankers, Paris, France, are reported inspecting the proposed route of the Cherryvale, Oklahoma & Texas Railway Co. S. M. Porter, Caney, Kans., and others are interested. Construction is under way between Caney, Kans., and Vinita, Okla. The projected line is from Kansas City to El Paso, and about 250 miles will be in Oklahoma.

Tenn., Chattanooga.—The Chattanooga, Rome & Atlanta Railway Co., according to a report quoting John H. Hill, who, with others, is interested in the enterprise, is preparing to make survey and obtain rights of way. A terminal station will be built in Chattanooga.

Tenn., Linden.—As a result of application made by Judge A. H. Wiggs and H. N. Ledbetter of Linden and others, the Nashville, Chattanooga & St. Louis Railway Co. will consider their suggestion that a railroad be built possibly from Nunnally via Lobelville to Beardstown and Linden, about 30 miles, and thence either to Perryville, about 15 miles, or to Waynesboro, about 22 miles. Hunter McDonald is chief engineer at Nashville, Tenn.

Tenn., Middleton.—President B. L. Winchell of the St. Louis & San Francisco Railroad is quoted saying that construction of the contemplated northward extension of the New Orleans, Mobile & Chicago line from Middleton to Jackson, Tenn., will begin soon. W. F. Owen, Mobile, Ala., is vice-president and general manager of the latter road.

Tenn., Morristown.—The Southern Railway has made surveys for second track from Bull's Gap to near Morristown, Tenn., and

from Morristown to Roe Junction, Tenn., a new cut-off line has been surveyed. W. H. Wells, Washington, D. C., is chief engineer of construction.

Tex., Brownwood.—The Brownwood North & South Railway Co. is reported contemplating an extension from May to Rising Star, nine miles, and to a point eight miles beyond May. Directors meet March 10 to act. John Mead of Brownwood, Tex., is chief engineer.

Tex., Dallas.—The Dallas Chamber of Commerce is reported notified that before March the Missouri, Oklahoma & Gulf Railroad Co. will begin construction of its projected extension from Denison to Dallas, 75 miles. J. J. Harrison, Muskogee, Okla., is chief engineer.

Tex., Fort Worth.—Reported that track-laying will begin immediately at Burleson, on the Fort Worth & Cleburne Electric Interurban Railway, 28 miles long, which is expected to be operating by July 1.

Tex., Hillsboro.—J. M. McDaniel, civil engineer, Dallas, Tex., is reported surveying for a railroad between Hillsboro and Whitney, 12 miles.

Tex., Jacksboro.—Ben B. Cain, vice-president and general manager, Dallas, Tex., says that the Gulf, Texas & Western Railway will build about 25 miles from Jacksboro to Salesville or Oran. Line not located. Bids will be received in about 90 days. P. E. Bock is chief engineer at Jarmyn, Tex.

Tex., San Antonio.—The bonus of \$10,000 for the extension of the Crystal City & Uvalde Railroad from Fowlerton via San Antonio to the Gulf of Mexico is reported subscribed, and work is to begin immediately. J. E. Franklin, president of the Bankers' Trust Co., St. Louis, is president of the road. A. R. Ponder, Crystal City, Tex., is general manager.

Tex., Texas City.—The Texas City Co., it is reported, will build an electric railroad from Texas City to Texas City Junction, several miles, to connect with the Galveston-Houston Interurban. Survey is made and contract is reported let to an Eastern construction company.

Va., Glamorgan.—Reported that the Indian Creek & Pound River Railroad, owned by the Currier Lumber Corporation of Glamorgan, will build an extension of six miles from near Pound Gap up Pound River to timber lands; also an extension of five miles down the river to Hettle, besides a line up North Fork.

Va., Newport News.—The Newport News & Old Point Railway & Electric Co., it is reported, will make considerable expenditures for improvements. J. N. Shannahan is vice-president and general manager.

Va., Roanoke.—The Norfolk & Western Railway is reported to have decided to undertake the long contemplated double-tracking of its main line from Lynchburg to Norfolk. C. S. Churchill, Roanoke, Va., is chief engineer.

W. Va., Clarksburg.—It is officially denied that the Baltimore & Ohio Railroad contemplates at present the construction of a line from Byron Station (Mt. Clare) to Clarksburg, about seven miles.

W. Va., Fairmont.—James O. Watson, general manager, says that bids will be received in April for the proposed line of the Clarksburg & Weston Electric Railway Co. from Mt. Clare to Weston, W. Va., about 16 miles. The route is undecided, one line surveyed being short and through rolling country, and the other longer, but comparatively level. D. D. Britt is chief engineer.

STREET RAILWAYS

Ky., Louisville.—The Louisville Railway Co. has sold \$1,000,000 of 5 per cent. 40-year general mortgage bonds, the proceeds of which are to be used for extensions and improvements, including the construction of a cross-town line, the extension of the East Broadway line and the completion of the Louisville & Interurban line to Kosmosdale. T. J. Minary is president.

Tex., Dallas.—Edward T. Moore, manager of the Dallas Consolidated Electric Railways, is reported saying that reconstruction of several lines of track will begin soon, besides other improvements.

Tex., El Paso.—P. E. Kern is reported to have made survey for an extension of the El Paso Street Railway.

Tex., Fort Worth.—Reported that private parties will build a street-railway extension of 1½ miles from the Hemphill line to the Baptist Theological Seminary. The Northern Texas Traction Co. can probably give information.

Tex., San Angelo.—The San Angelo Power & Street Railway Co., capital \$100,000, will, it is reported, make extensions and other improvements. J. D. Sugg and others are interested.

Tex., Greenville.—Tracklaying is reported begun on the Greenville Street Railway extension from Forest Park to Peniel.

MACHINERY, PROPOSALS AND SUPPLIES WANTED

Manufacturers and others in need of machinery or supplies of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery or supplies needed we will make their wants known free of cost, and in this way secure the attention of manufacturers and dealers throughout the country. The Manufacturers Record has received during the week the following particulars as to machinery and supplies wanted.

Abattoir Equipment.—See "Ice Machinery, etc."

Agricultural Implements.—Ivan A. Rostoff on the Don, Russia, wants to correspond (in German, with view to agency) with Poljakoff, No. 73 Bolschaja, Sadowaja St., manufacturers of reapers, sowers, seeders, disk sowers, hay rakers, fans and winnowing machine, manila hemp, etc.

Air Compressor.—D. L. Casey Machine Co., Springfield O., wants prices on air compressor; Westinghouse preferred.

Alcohol.—Reading Wood Pulley Co., 11th and Muhlenberg Sts., Reading, Pa., wants addresses of manufacturers of denatured alcohol in barrel lots.

Boiler.—Georgia Chair Co., Forrest Addition, manager, Flowery Branch, Ga., wants prices on 125-horse-power boiler.

Boilers.—See "Milling Machinery."

Boiler.—See "Cannery Equipment."

Bridge Construction.—City Council, Nacogdoches, Tex., will receive bids until 10 A. M. February 13 for construction of two concrete bridges, as per plans and specifications on file at Mayor's office; certified check \$250; J. R. McKinney, secretary.

Bridges.—See "Sewers."

Broom Machinery, etc.—V. J. Ward, Blackshear, Ga., wants information, catalogues and prices on broom machinery, broom corn and findings.

Broom Machinery.—Board of Trade, Geo. B. Waggoner, treasurer, Jane Lew, W. Va., wants prices on equipment for broom factory.

Building Materials.—R. R. Clnard, 156 W. 4th St., Winston-Salem, N. C., wants catalogues, prices, etc., on mantels, grates, floor tile, mantel tile, fire-brick, roofing, lime, cement, plaster, screens, etc.

Building Materials.—C. D. Harper, Summerville, Ga., wants prices on building materials.

Building Materials.—S. W. Williams, 109 W. Edenton St., Raleigh, N. C., wants prices on building materials for nine-room residence.

Bulkhead Construction.—J. F. Benson, 701 Paul Gale Greenwood Bldg., Norfolk, Va., will receive bids until noon March 1 for constructing bulkhead around and filling certain property of River Front Realty Corporation in Norfolk county, Virginia; work includes 2850 linear feet of pile and timber bulkhead and 60,000 cubic yards of fill; plans, drawings and specifications by Mr. Benson, from whom same can be obtained.

Burners.—L. S. Wolf, Box 983, Tampa, Fla., wants to correspond with manufacturers of burners for using kerosene and crude oil for heating stores originally made for wood and coal.

Canal Construction.—Drainage Commissioners of Carroll county, Mississippi, will open bids at Vaiden, Miss., at 2 P. M. February 19 for constructing ditch or canal; 7½ miles long; 21 feet wide and 7 feet deep; certified check for \$250; usual rights reserved; James Somerville, member of Board of Commissioners.

Canning Machinery, etc.—Hodges & Lamb, Mammoth Spring, Ark., want to cor-

respond with manufacturers of canning machinery and supplies, including cans and labels.

Cannery Equipment.—F. L. Smiley & Sons, R. F. D. No. 1, Roanoke, Va., want prices on boiler, engine, capping machine, kettles and labeling machines for tomato cannery to be established at Newport News, Va.

Cement Gun.—See "Spraying Machinery." **Chair Machinery, etc.**—Georgia Chair Co., Forrest Additon, manager, Flowery Branch, Ga., wants prices on 125-horse-power boiler, 100-horse-power engine, chair machinery and piping.

Concrete Mixer.—C. R. McGahey, Room 614, Central Y. M. C. A., Baltimore, Md., wants small concrete mixer without engine; one-quarter yard will answer; second-hand.

Crane.—McNeal Monument Co., Columbia, Tenn., will install one-ton traveling crane; 30-inch spur.

Crusher.—C. R. McGahey, Room 614, Central Y. M. C. A., Baltimore, Md., wants small-jaw rock crusher; second-hand.

Dairying Machinery.—William Walker Jones, 511 Tucker Bldg., Raleigh, N. C., wants catalogues and prices on complete dairying machinery.

Drainage.—Commissioners Black Creek Drainage District (R. T. Kimbrough, W. B. Lundy and J. A. Brown) will open bids at noon March 5 at office of Noel, Loothe & Pepper, attorneys, Lexington, Miss., for construction of drainage canal from point on Tehula Lake near Mileston; length about 5½ miles; 10 feet wide at bottom, with side slope of 1 to 1; depth will vary from 6 to 14 feet, there being 10,836.43 cubic yards practically complete except as to embankment on south side, which has been broken in places and will require about 790 cubic yards of dirt to repair same; will require about 58,037.27 cubic yards of dirt to complete same on east end, according to original map; separate bids to be made for completion of said canal with and without repaving levee or embankment; also separate bids for extension of said canal, beginning at east end thereof for distance of about two miles, exact route and distance to be decided by engineer during course of work; plans and specifications on file with chancery clerk of Holmes county at Lexington; certified check \$300; James F. Fountain, engineer, Lyons, Miss.

Engine.—See "Cannery Equipment."

Engine.—Samuel T. Williams, 223 N. Calvert St., Baltimore, Md., wants 125-horse-power Corliss engine; 80 pounds boiler pressure.

Engine.—Georgia Chair Co., Forrest Additon, manager, Flowery Branch, Ga., wants prices on 100-horse-power engine.

Fertilizer Machinery.—C. B. Edwards, 123 W. Martin St., Raleigh, N. C., wants prices on machinery to manufacture bone-meal fertilizer.

Fan.—Panama Coal Co., M. V. Denton, manager, Robards, Ky., wants prices on 14-foot fan.

Furniture.—E. W. Shortridge, Suffolk, Va., wants to correspond with manufacturers of furniture relative to buying stock for store.

Galvanizing Equipment.—See "Metal-working Machinery, etc."

Gasoline Engine.—See "Grist Mill."

Gasoline Engine.—C. R. McGahey, Room 614, Central Y. M. C. A., Baltimore, Md., wants 10 to 12-horse-power second-hand gasoline engine.

Gas Plant.—M. L. Wilson, care Alabama Oil & Guano Co., Opelika, Ala., wants information, etc., on establishment of gas plant for town of 6000 population.

Grading, etc.—City Clerk, Durham, N. C., receives bids until 6 P. M. February 5 for grading Oakwood Ave. and Markham St. and construction of culvert under same; about 10,000 yards excavation and 45 yards concrete; information on application at office of City Engineer, Municipal Bldg.

Grinding Machinery.—See "Fertilizer Machinery."

Grist Mill.—M. C. Fields, Kings Creek, Ky., wants gasoline engine and grist mill for grinding corn and feed.

Handles.—Reading Saddle & Manufacturing Co., 316 Maple St., Reading, Pa., wants to correspond with manufacturers of saw handles; wants cheap handles for keyhole saw and carpenter saw.

Heating Plant, etc.—I. A. Walker, Galveston, Tex., wants prices on heating and ventilating equipment.

Heating Plant.—Holmboe & Lafferty, Clarksburg, W. Va., want addresses of heating contractors in vicinity of Washington, D. C., preferred.

Heating Plant.—C. D. Harper, Summer-ville, Ga., wants prices on hot-water heating plant for two-story residence.

Ice Machinery, etc.—Southern Packing & Produce Co., 505 Tennessee Trust Bldg., Memphis, Tenn., will receive bids until noon February 14 on machinery and equipment for 10-ton ice plant and abattoir.

Interior Trimmings.—I. A. Walker, Galveston, Tex., wants plastic relief decorations for theater.

Irrigation System.—Bids received at office of Board of Directors of Union Irrigation District, at Raymondville, Tex., until 2:30 P. M. March 5 for preliminary engineer-

ing, surveying, etc., for irrigation system; work includes no actual construction, but all work of surveying, engineering, making of estimates, specifications, etc., necessary to commencement of actual construction work; maps, plans, etc., now on file and may be seen at office of Board of Directors, or may be had on application to V. L. Conrad, district engineer, Raymondville; usual rights reserved; A. T. Woodhouse, president; Frank S. Miller, secretary.

Laundry Machinery.—W. Beatson, Tryon, N. C., wants addresses of manufacturers of laundry machinery.

Laundry Machinery.—J. H. Hartley, 702 Mosher St., Baltimore, Md., wants data and prices on laundry machinery.

Levee Construction.—Commissioners Caddo Levee District, Shreveport, La., receive bids until noon February 14 for construction of levee in Caddo parish, on left bank Red River, from Twelve-Mile Bayou to Cross Bayou, distance of 17,500 feet.

Levee Construction.—Proposals received at office of Board of Commissioners of Caddo Levee District, Shreveport, La., until noon February 14 for constructing new levee in Caddo parish, Red River, left bank; from Twelve-Mile Bayou to Cross Bayou; length, 17,500 feet; contents, 25,000 cubic yards; deposit required, \$600; usual rights reserved; information, etc., may be had on application to Board of State Engineers, New Orleans, La.; S. A. Dickson, president; S. N. Kerley, secretary; Walter H. Hoffman, engineer in charge.

Lighting Fixtures.—I. A. Walker, Galveston, Tex., wants prices on indirect lighting fixtures.

Machine-shop Equipment.—High Point Motor Co., George Wilson, president, High Point, N. C., wants to purchase lathe, motor, drill press, pump, air tank, etc.

Metal-working Machinery.—See "Woven-wire Work, etc."

Metal-working Machinery, etc.—Eagle Manufacturing Co., J. H. Johnson, secretary, Liberty, N. C., wants prices on metal shear to cut galvanized iron 28 or 30 gauge, 54 to 60 inches long; operated either by foot power or belt; also wants prices on 28 and 30 gauge galvanized iron, steel and iron sheets in car lots, galvanizing equipment and different grades of metal for this purpose.

Milling Machinery.—Munfordville Milling & Lumber Co., A. R. Spencer, president, Munfordville, Ky., wants prices on 100-horse-power boilers, machine for crushing ear corn, and mill supplies.

Naval Supplies.—Navy Department, Bureau of Supplies and Accounts, Washington, D. C., will receive bids until February 27 for furnishing vertical drilling machine, vertical milling machine and one hydrostatic wheel press, schedule 4331; 12 watt-hour meters, schedule 4333; delivery Navy-yard, Charleston, S. C.; also receives bids until February 27 for furnishing 1000 cubic yards of sand, 1000 cubic yards of broken or gravel stone, schedule 4333; 800 gallons turpentine substitute, 2000 gallons of spar varnish and 50,000 pounds of dry metallic zinc; delivery Navy-yard, Norfolk, Va.; also receives bids until February 27 for furnishing 276 silent chain wheels, schedule 4334; delivery Navy-yard, Washington, D. C.; for schedules apply navy pay office nearest navy-yard.

Paper Machinery.—See "Waxed-paper Plant."

Paving.—Speedway Land Co., F. W. Faxon & Co., agents, Memphis, Tenn., will let contract in about 60 days for constructing sidewalks in Speedway Ter.

Paving.—Commissioners Paving District No. 6, Helena, Ark., will receive bids until 4 P. M. February 12 for street paving; plans may be had from City Engineer or from district engineer, E. A. Kingsley of Little Rock, Ark.; specifications and bidding blanks furnished by engineer; S. S. Faulkner, chairman commissioners.

Paving.—J. B. Winslett, City Secretary, Dallas, Tex., will receive bids until 2 P. M. February 9 for paving Walton St. from Main to Elm St.; separate bids to be submitted on bitulithic, four-inch creosoted pine block and vitrified brick paving, concrete sidewalks, class "A," concrete curbs, concrete gutters and combination concrete curb and gutter; certified check \$200; specifications on file with City Secretary.

Paving Material.—Committee on Streets and Lanes, Savannah, Ga., receives bids until noon February 12 at office of Abe S. Guckenheimer, director of Public Works, for furnishing city 15,000 to 50,000 square yards No. 1 asphalt paving block, delivered f. o. b. cars or wharf, Savannah. Specifications may be obtained upon application.

Pipe Line.—Baltimore (Md.) Board of

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Pipe Line.—Baltimore (Md.) Board of

Awards receives bids until 11 A. M. February 14 for furnishing and installing complete system of underground feeders from high-pressure pumping station, South St., to City Hall, courthouse and City Hall annexes; certified check \$500; drawings and specifications on file with C. E. Stubbs, building inspector.

Piping.—Georgia Chair Co., Forrest Additon, manager, Flowery Branch, Ga., wants prices on piping. (See "Chair Machinery, etc.")

Plow.—See "Tractor Plow."

Power Equipment.—See "Electric Light Plant."

Pumps (Centrifugal).—See "Electrical Machinery, etc."

Radiators.—Trustees of Newbern City Graded School, T. A. Green, president, Newbern, N. C., will want a few radiators.

Rails.—Tampa & Gulf Coast Railway, Charles H. Brown, president, Tampa, Fla., wants prices (delivered) on new or second-hand 48-pound, 50-pound and 56-pound rails.

Revetment.—U. S. Engineer Office, Kansas City, Mo. Proposals for constructing standard revetment on Missouri River 3½ miles below Kansas City and 2 miles below Waverly, Mo., will be received until noon March 4. Information on application. Edward H. Schulz, Major, Engineers.

Road Machinery.—J. H. Whyte, Bedell Bldg., San Antonio, Tex., wants catalogues and prices on road machinery.

Rope.—See "Agricultural Implements, etc."

Safe.—Northern Neck National Bank of Kinsale, Va., will want prices on burglar-proof safe.

Sewers.—Proposals received by Commissioners of St. Elmo, Tenn., until 7 P. M. March 1 at town hall for furnishing material and labor and building complete sewerage system as follows: 14 miles pipe sewers, 8 to 24 inches; 1 sewage-disposal plant; 1 bridge across Chattanooga Creek; 400 linear feet tunnel; let as a whole or in three sections as specified; plans may be seen at office of engineers, and copies may be had on payment of \$5; specifications may be had on application to either H. B. Wilson, Mayor, or Cushman-Fairleigh Engineering Co., engineer, 724 James Bldg., Chattanooga, Tenn.; certified check for 7 per cent. of amount of bid; usual rights reserved.

Sewer Construction.—Board of Revenue of Jefferson County, Room 101 Courthouse, Birmingham, Ala., will receive bids until noon February 15 for construction of sanitary sewer near Boyles, Ala.; plans and specifications on file with L. H. Salter, sanitary engineer.

Sewer Construction.—Baltimore (Md.) Board of Awards receives bids until 11 A. M. February 14 for laying house connections across footways in sanitary district No. 14, etc., sanitary contract No. 85; specifications and plans may be obtained upon application at office of Sewerage Commission, Room 204 American Bldg.; charge of \$5 for each specification and blueprints; certified check \$100; approximate quantities, 1430 houses to be connected, requiring 7200 linear feet five-inch extra heavy cast-iron soil pipe, 4125 linear feet five-inch terra-cotta pipe, 7150 linear feet six-inch terra-cotta pipe; Charles England, chairman Sewerage Commission.

Sewer Connections, etc.—Office of Capt. A. J. Macnab, Jr., constructing quartermaster, 416 Hibernia Bank Bldg., New Orleans, La. Bids received until 11 A. M. February 28 for constructing roof over settling tanks, sewer connections to quarters and earth fill under elevated water main at Fort St. Philip, La.

Skylight.—I. A. Walker, Galveston, Tex., wants prices on standard underwriters' skylight for roof over stage.

Spraying Machinery.—C. S. Jackson & Co., Crowley, La., want to correspond with manufacturers of cement gun for placing plaster, etc.

Structural Steel and Sundries.—Sealed proposals received at office of General Purchasing Officer, Isthmian Canal Commission, Washington, D. C., until 10:30 A. M. February 23, and then opened in public, for furnishing structural steel, material for steel cylinders, rivets, bolts, nails, pipe wrenches, manila rope, canvas, metallic brown, black paint, wrapping paper, manila folders, thumb tacks, paste and ink. Blanks and general information relating to this circular (No. 680) may be obtained from this office or offices of assistant purchasing agents, 24 State St., New York; 614 Whitney-Central Bldg., New Orleans, and 1066 North Point St., San Francisco; also from U. S. Engineer offices in Seattle, Los Angeles, Baltimore, Philadelphia, Pittsburgh, Boston, Buffalo, Cleveland, Cincinnati, Chicago, St. Louis, Detroit, Mil-

waukee, St. Paul, Chattanooga, Louisville, Mobile and Galveston; Commercial Club, Kansas City, Mo.; Chamber of Commerce, Quincy, Ill., and Commercial Club, Tacoma, Wash. F. C. Boggs, Major, Corps of Engineers, U. S. A., General Purchasing Officer.

Tank.—See "Machine-shop Equipment."

Tractor Plow.—Paul N. Nash, Clinton, S. C., wants small tractor for use in breaking land and cultivating cotton.

Ventilating.—See "Heating Plant, etc."

Water-works Material.—Bids will be received by Kentwood, La., until February 17, addressed to W. D. Welsh, Mayor, for furnishing and delivering the following articles: Fifty tons 4-inch, 250 tons 6-inch and 100 tons 8-inch standard cast-iron water pipe, class "B"; also 10 tons specials, 35 hydrants, 40 gate valves, 10 tons pig lead, 15 manhole frames and covers, and one carload of best Portland cement; Geo. F. Conant, engineer.

Water-works.—J. F. Barnett, care Palacios State Bank, Palacios, Tex., is interested in contemplated installation of water-works.

Waxed-paper Plant.—Ro. Henning, Jr., Equitable Bldg., Baltimore, Md., wants information on manufacture of waxed paper; as to cost, processes, labor and average profits; also prices on machinery and supplies.

Well-drilling.—Cumberland Oil Co., office of Doak Aydelott, Tulsa, Okla., Tenn., is prepared to let drilling contracts.

Wire, etc.—Office of Chief Signal Officer, Capt. R. J. Burt, disbursing officer, War Department, Washington, D. C., will receive bids until 11.30 A. M. February 13 for furnishing 82,000 feet of phosphor-bronze antenna cord, specification 416-c; 72,000 feet furnished on spools containing lengths of 20,000 feet each, and 10,000 feet on spools containing lengths of 1000 feet each; 22,000 feet counterpoise wire, specification 416-c; 350 pounds wire, silicon bronze, 36 miles diameter, on spools, each spool containing about 11 pounds; please return specifications.

Woodworking Machinery.—Prison Commissioners, Ben E. Cabell, chairman, Huntsville, Tex., will open bids February 27 for furnishing woodworking machinery; for specifications address J. A. Palmer, secretary Prison Commission, Huntsville.

Woodworking Machinery.—G. B. Brieger, Taylor, Tex., wants prices on woodworking machinery.

Woven-wire Work, etc.—J. E. Hildt, 220 Court St., Muskogee, Okla., wants prices on machinery to manufacture stamped (in-ware and woven-wire work, such as letter trays and dish drawers; will also consider proposals to let contracts for this work.

The company has erected stables, granaries, machine sheds, office buildings, workmen's dwellings, etc., to facilitate the preliminary work now in progress.

Auction Sale of Property of the Isbell Corundum Co.

Property consisting of 900 acres of valuable timber land in Clay county, North Carolina, on which there is a deposit of high-grade corundum, will be sold at public auction on the first Monday in March at Hayesville, Clay county, North Carolina. There is also a large building filled with machinery installed for cleaning corundum, and a large boiler and engine little used. The property will be sold as a whole or in parcels to suit purchasers. Any further information may be obtained by addressing Edmund B. Norvell, Murphy, N. C., or F. S. Johnston, Franklin, N. C.

Increase in Capital of the Allen Engineering Co.

At a recent meeting of the Allen Engineering Co., Memphis, Tenn., which was organized two years ago with a capital of \$40,000, new officers were elected and the capital increased to \$100,000. The new officers are Thomas H. Allen, president; B. R. Hoshall, vice-president and general manager; Sam P. Walker, secretary, and H. L. Alexander, treasurer. G. D. Raine, Jr., retired as president to devote his time to other extensive interests. This company manufactures a complete line of heavy-duty power transmission equipments, conveying machinery and bottom-oil mill equipments. It also has a department devoted to the sale of steam, electric and hydraulic machinery.

Hughes Specialty Well Drilling Co.'s Contracts.

Contracts for wells ranging in size from 8 to 18 inches in diameter and from 500 to 800 feet in depth have been recently awarded to the Hughes Specialty Well Drilling Co., Charleston, S. C., as follows: Wells for the American Agricultural Chemical Co., Pocomoke Works, Columbia, S. C.; for the towns of Talladega and Cullman, Ala.; Griffin and Jesup, Ga.; Kingstree, S. C., and for the Charleston Hotel Co., Charleston, S. C. Similar wells have been completed for the towns of Albertville and Columbiana, Ala.; Newnan, Ga.; for the Birmingham Fertilizer Works, Birmingham; Corenet Phosphate Co., Plant City, Fla.; the Phosphate Mining Co., Savannah, and the Charleston Abattoir Co., Charleston. This company was established in 1885, incorporated in 1901, and has its main office at Charleston, with warehouses at Charleston and Plant City, Fla.

TRADE LITERATURE.

Pratt Engineering & Machine Co.'s Memorandum Book.

In order to bring up to date the loose-leaf memorandum book issued in 1911 by the Pratt Engineering & Machine Co., Atlanta, Ga., it is now issuing a leaf with a 1912-13 calendar for insertion in the book. The company manufactures and carries in stock a full line of supplies and equipment used in acid works and fertilizer plants, also heavy bronze castings and sugar-mill machinery.

Walter A. Zelnicker Supply Co.'s Catalogue.

A special list of equipment, including "Zelnicker" manufactures, is issued as circular No. 127 by the Walter A. Zelnicker Supply Co., St. Louis. This list includes a brief description of rails, locomotives, cars, equipment and contractors' supplies. Hundreds of items are listed in this circular, many of which are offered at reduced prices. It is also noted that its 850-page catalogue will be sent on request, in addition to the special circulars issued from time to time by the company.

Gardner Duplex Steam Pump.

The quality and reliability of the products of the Gardner Governor Co., Station L, Quincy, Ill., have become well established and recognized in the 52 years which this company has devoted to the manufacture of steam-engine governors, etc. The Gardner duplex steam pump is made along the same careful and conservative lines as the Gardner governor, and is giving excellent service in many large manufacturing industries. In catalogue No. 18, recently issued, Gardner pumping machinery, receivers, pump governors, lever valves, etc., are described and illustrated. Useful information concerning water pumping and the equipment required is also included. One section of this catalogue contains valuable suggestions for users and operators of pumps, together with a collection of data and information for en-

gineers. This comprehensive pump catalogue will be sent to interested persons on request.

"National" Coating for Metal Pipes.

"National" coating is made for protection against external corrosion and electrolysis, as applied by the National Tube Co., Frick Bldg., Pittsburgh, to pipe ranging in size from 3 to 18½ inches outside diameter. Preparations are being made to extend its use to include all the sizes of pipe manufactured. The methods of applying, advantages of its use, suggestions regarding the laying of pipe covered with National coating and instructions as to specifying when ordering the product, are stated in N. T. C. Bulletin No. 8, recently published by the National Tubing Co. This bulletin will be sent to interested persons on request to the company.

Erie Sand-Gravel Dredging Pumps.

The various types of Erie sand-gravel dredging pumps as manufactured by the Erie Pump & Engine Works, Erie, Pa., are described and illustrated in Bulletin No. 27, issued by the company. Erie standard belt-driven pumps, direct connected steam-driven pumps, special geared pumps, portable pumps and a view of construction work on which these pumps are used are shown in the bulletin. A table is given of specifications showing dimensions, capacities, shipping weights, prices, etc., for each type. In addition to its sand-gravel dredging pumps, this company builds a complete line of centrifugal water pumps for every drive and form of service.

The Jacobs-Shupert U. S. Firebox Co.'s Boiler Tests.

Evaporative tests to determine the relative efficiency of a locomotive boiler with the Jacobs-Shupert firebox in comparison with a similar boiler having a normal stay-bolt firebox will be held at the Jacobs-Shupert U. S. Firebox Co.'s plant at Coatesville, Pa., beginning February 1, and low-water tests of the same boiler will begin about April 1, the tests to continue indefinitely until completed. While it is impossible to state on what date any certain test will be made, the company will advise prospective visitors of the approximate time upon request. A folder invitation has been issued giving the different tests that will be made and other general information.

Rib Lath and Studs for Plaster and Stucco.

The Kahn System of using metal rib lath and rib studs for applying plaster and stucco is illustrated and described in the fourth edition of the catalogue just issued by the Trussed Concrete Steel Co., Detroit, Mich. This catalogue is a practical treatise on stucco and plaster work in sidings, partitions and ceilings and for the construction of hollow walls and hollow partitions by the use of metallic laths and ribs. The methods of construction and of applying the plaster and cement are given in detail. A form of specifications for such work is also included. An illustration is given of an old wood frame building which has been "over-coated" and transformed into a handsome stucco finished building by the use of rib lath.

"Novo" Gasoline Engines.

The principal features and advantages of the "Novo" gasoline engine are described and illustrated in a booklet recently issued by the manufacturer, the Novo Engine Co., Lansing, Mich. The "Novo" engine is of the vertical type, self-contained, of light weight for the power delivered, is four cycle in operation, is regulated by a "hit-and-miss" governor, has jump spark ignition and is provided with a frost-proof cooling system that gives the efficiency of the water-cooled engine, together with the advantages of the air-cooled type. The gasoline is contained in the engine base, away from all heat, so that no sheet metal tanks are required. A suitable drain is provided for moving any foreign matter from the fuel tank without disturbing the engine on its foundation. By the use of the "hit-and-miss" governor the operating expenses of the "Novo" are reduced to a minimum, since no more fuel can be used than is necessary to keep the engine at normal speed. The compact, self-contained design of this engine adapts it to use in portable machinery, such as concrete mixers, power sprayers, well drillers, hay presses, etc., as well as making it convenient for use on the farm and in the shop. A number of illustrations showing it in use as the power equipment for concrete mixers are contained in the booklet. The various sizes of "Novo" engines suitable for the different purposes to which they are adapted are also stated; catalogues and quotations and any other information required will be furnished on request.

INDUSTRIAL NEWS OF INTEREST

North Tampa Land Co.

The North Tampa Land Co., Tampa, Fla., is continuing the development of its 39,000 acres of land in Hillsborough county. It has sold about 20,000 acres to about 1400 families during the past 10 years, and has completed the platting of its new town called North Tampa, where over 20 residences, school, store and other buildings have been completed. This company has offices in the Commercial National Bank Bldg. at Chicago.

Boston Representative of the Chicago Pneumatic Tool Co.

Mr. Charles Booth, who has been connected with the Chicago Pneumatic Tool Co., Chicago, since its organization, has been appointed district manager of the company's New England territory, with headquarters at 31 High St., Boston, in the place of J. N. Towle, resigned. Mr. Booth was formerly vice-president of the company, which position he relinquished owing to ill-health.

W. S. Rosenfeld Electric Co.'s Expansion.

In addition to handling electrical supplies, carrying out contracts for electrical work and repairing, the W. S. Rosenfeld Electric Co., Baltimore, has installed a plant for manufacturing electrical fixtures. This company also has its own plant for plating fixtures, etc. It is now turning out its samples in this new department, and will from this time on carry an extensive line of its own manufactures.

Grain Mills Completed.

J. H. Hartley, 702 Mosher St., Baltimore, Md., has completed an installation for the Middlesex Manufacturing & Mercantile Corporation at Urbana, Va. The equipment includes new roller mill with daily output of 50 barrels of flour, and cornmeal outfit with old-style millstone. This \$50,000 company also has a chopping plant to crush and grind all kinds of grain into feed, for cracking and grinding corn for the poultry trade, besides operating a 20-ton daily ice plant.

Larger Pittsburgh Quarters for the H. W. Johns-Manville Company.

The rapidly increasing demand in Pittsburgh and vicinity for the asbestos, magnesite and other products of the H. W. Johns-Manville Company, 100 William St., New York, has necessitated a move from its present location, on Liberty Ave. near 9th St., to larger quarters at Wood St. and First Ave. It will occupy the entire eight-story stone, reinforced concrete and steel building, having a floor space of 23,800 square feet.

The Riverside Steel Casting Co.'s New Plant.

The new plant of the Riverside Steel Casting Co., Plank Rd. and Passaic River, Newark, N. J., is now in operation with a complete foundry installation. The plant consists of a foundry building 150x40 feet, main building with two lean-to structures 25 feet wide the full length of main building, a power-house 25x50 feet, a pattern-storage building 25x50 feet, and an office building of concrete 15x30 feet. The plant includes four crucible furnaces with a capacity of 40 pots per furnace per day, one large annealing furnace, three large drying ovens; one five-

ton electric crane, floor operated; exhaust tumbling barrels, etc. The waste heat from the furnaces is used to produce steam. The site on which these buildings are located embraces one and one-half acres and has a private siding from the Pennsylvania Railroad, and good shipping facilities by water.

T. L. Smith Asphalt Mixers in the South.

The city of Memphis, Tenn., has just purchased through W. B. Troy, Jr., Memphis Trust Bldg., Memphis, an asphalt mixer from the T. L. Smith Company, Milwaukee. This mixer is to be used by the city to keep its streets in repair and its operation will be watched with interest by the municipal authorities of other cities, as the subject of municipalities providing means for keeping streets in repair is one of rapidly growing importance.

The Union Sulphur Co.'s New York Office.

On and after February 12, 1912, the general New York office of the Union Sulphur Co. will be located in the Whitehall Bldg., 17 Battery Pl. This company owns and operates sulphur mines in Louisiana, shipping sulphur to all parts of the world through the Port of Sabine Pass, Tex. It has large storage facilities at Baltimore, Philadelphia, New York, Boston, Portland, and Three Rivers, Canada, from which sulphur is supplied in carload lots as may be required.

The General Fireproofing Co.'s Additional Plant.

At the annual meeting of the stockholders of the General Fireproofing Co., Youngstown, O., held recently, it was decided to build an addition to the plant at once. The new building is to be an addition to the steel furniture department, four stories in height, plans for which have been accepted. The contract will now be let for its immediate construction. A large addition was made to this department about a year ago. W. H. Foster was elected president. He was formerly vice-president and general manager.

W. H. Clinard's Builders' Supply House.

A wholesale and retail builders' supply house is to be opened at an early date in Winston-Salem, N. C., by W. H. Clinard, who at present is a wholesale and retail dealer in paints, oils, wallpaper and painters' supplies. He will carry a full line of mantels, grates, floor tile, mantle tile, fire brick, screens, roofing, lime, cement, plaster and other items of builders' supplies. Salesmen will be employed to follow up all new building operations throughout the State and to establish subagencies. Catalogues, prices, etc., are desired.

Appalachian Apple Orchards.

G. A. Baker of the Appalachian Apple Orchards, Atlanta, Ga., writes that his company is progressing with its development in Rabun and Habersham counties, Georgia. Many men are employed chopping timber, cutting logs and ties, hauling materials to sawmill, hauling lumber to railway for shipment, etc. About 400 acres have been cleared and young trees have been ordered, many of them already delivered ready for planting.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

MOTOR TRUCK AND TRACTOR NEWS

Tulsa Motor Trucks for April Delivery.

The Tulsa Automobile & Manufacturing Co., Tulsa, Okla., has completed preparations previously mentioned in these columns for manufacturing one-half ton, one and two ton motor trucks, and expects to make deliveries about April 1. The Dowagiac Motor Car Co. of Dowagiac, Mich., has moved to Tulsa and is now a part of the Tulsa company. It expects to do an extensive business in the South and Southwest, and will make shipments to even more distant sections.

Nyberg Automobile Works.

The Nyberg Automobile Works of Anderson, Ind., which has been doing a very successful business, is organizing a separate company in Chattanooga, Tenn., for the manufacture of its cars, in order to take care of the increasing demand of the Southern trade. To save time a building has been rented to be used temporarily, and operations will start immediately so that they will be in position to deliver cars from there within thirty days. Meanwhile, plans and specifications for the erection of its own factory are being prepared and a complete installation will be made as soon as practicable.

Want Motor Tractors for Farm Use.

As an indication of the general interest taken by Southern farmers in the use of motor tractors for plowing, cultivating cotton and for other uses to which the power afforded by the tractor may be put, inquiries similar to the following are received. Paul H. Nash, Clinton, S. C., writes: "Several farmers here are interested in some type of small tractor economical enough in cost and maintenance for use in breaking land and cultivating cotton. I wish to have addresses of makers of such machines." Such letters also show the commanding position of the Manufacturers Record in bringing the manufacturers of machinery into touch with present and prospective thousands of users in the South and Southwest.

Automobile Shows in the South.

The growth of interest and the increase of business in automobile and motor truck sales in the South is in a measure reflected in the number and extent of the shows, including both automobiles and motor trucks, for the 1912 season. In addition to the shows recently held at Montgomery, Ala., and Washington, the following automobile and motor truck shows are to be held in the following cities: February 5 to 10, automobiles, and February 12 to 17, commercial cars at St. Louis, Mo.; February 10-17, Atlanta; February 12 to 17, Memphis and Kansas City; February 20 to 25, New Orleans; February 20 to 28, Baltimore; February 21 to 24, Louisville; March 2 to 9, Norfolk. An immense amount of enthusiasm is being shown in the respective sections for all of these shows, and undoubtedly the results will prove beneficial in many ways to the exhibitors, the manufacturers and the people who may have the opportunity to visit the shows.

Seltz Motor Trucks in Baltimore.

In extending the sales of its motor trucks in the South, the Seltz Automobile & Transmission Co., Detroit, has established among its numerous agencies one at Baltimore with the Norwood Bros., Inc. The stock sizes are 1500-pound, 1, 2, 3 and 5-ton trucks. In a demonstration of the Seltz trucks during the past week, a three-ton truck was loaded with 4½ tons of paper, which was transported from the water-front to Northeast Baltimore. The Maryland Steel Co. is reported as having purchased a five-ton Seltz truck, and Henry W. Schloman has purchased a 1500-pound light wagon. The opposed friction drive is incorporated in these trucks, using two friction wheels opposing each other on opposite sides of a steel driving disc. When the operator pushes the lever forward two of the wheels pinch the driving disc, and the truck is set in motion without any jerk; when the lever is pulled backward two other wheels pinch the disc and it reverses at once also without jerk. The catalogue illustrating and describing Seltz trucks may be obtained on request to the company or its agencies.

Knox Motor Fire Engines Effective.

A big fire in Richmond, Va., recently furnished a demonstration of the value of the modern motor-driven fire apparatus. For 13 hours a big Knox pumping engine kept two streams going on the fire practically without intermission, and within a few minutes after

it returned to headquarters it was ready for another call. During the entire time the engine was working the chauffeur, who was also engineer and mechanic, occasionally poured a bucket of gasoline into the tank and went over his machine with an oil can. The steam fire engines at work during the same period each required two men in attendance, an engineer and a fireman. Their total consumption of fuel was reported as over 25 tons of steam coal, and the bill for running the gasoline pump at full speed for 13 hours, \$4.50. A few minutes after the fire was extinguished the engine backed into its house, the tanks were filled, the machinery oiled and the driver reported all ready for duty. This big Knox engine is really an entire fire department in itself. It is propelled by the same motor that works the pumps, a 6-cylinder, 60 horse-power motor. It also carries a 35-gallon chemical tank with hose and 1000 feet of fire hose. When not in action it has no hoses to feed and its cost of maintenance between fires is practically nothing. The wonderful work done at this fire removed the last doubt from the minds of the fire commissioners at Richmond, and already the matter of motorizing the entire fire department is being agitated. This motor fire engine was manufactured by the Knox Automobile Co., Springfield, Mass.

Mathematical Predictions of Motor Truck Demands.

W. E. Wright, vice-president and general manager of the Knox Automobile Co., Springfield, Mass., taking the Government's statistics as a basis as regards the increase in the number and value of horses between 1900 and 1910, deduces from a mathematical calculation that if in 1920 the horse should be superseded by motor trucks and tractors, it would take 7,000,000 trucks and tractors to entirely take its place. His statement leading up to this result is as follows: "The new yearbook of the Department of Agriculture discloses some startling figures. It shows a wonderful increase in horse stock. In 1900 there were 15,000,000 horses in the United States, and ten years later, or in 1910, there were 24,000,000 horses. These numbers are the largest on record in the history of the country. Compared with those of ten years ago they show a gain of 60 per cent. While horses have increased in number they have also increased in value. In 1900 the estimated value of horses on farms was \$14 per head, with a steady rise, interrupted only by the panic of 1907. These values mounted up year after year until in 1910 the average price was \$108, representing a gain of nearly 150 per cent. The value of the horses and mules in this country ten years ago was practically \$315,000,000, while today it exceeds \$3,000,000,000, a gain of more than \$2,685,000,000. At the present rate of increase in our commerce, in 1920 it would take nearly 40,000,000 horses to supply the demand. If the horse is to be superseded by trucks and tractors it would take (allowing that one truck will do the work of six horses) 7,000,000 trucks and tractors (allowing the life of the truck to be five

years). It would take a production of 1,400,000 trucks per year to supersede the horse entirely in ten years. The up-keep of horses is increasing faster than the value, while the up-keep of the automobile is decreasing. In the face of these figures, how can anyone say the automobile business is being overdone? It is really just now coming into its own. The Knox Automobile Co. anticipates that 1912 will be the biggest year in its history. Our commercial vehicle, fire apparatus and tractor business will easily be three times what it was in 1911. All the other old-line manufacturers will show an increased production, and 1912 will undoubtedly be the banner year for the automobile business.

The International Motor Co.'s Catalogues.

The extensive lines of Mack motor trucks and Saurer motor trucks manufactured by the International Motor Co., New York, are described in detail and fully illustrated in the catalogues issued by the company. The Mack catalogue comprises the trucks manufactured at Allentown, Pa., and the Saurer catalogue those turned out at Plainfield, N. J. The general offices of the company are 30 Church St., New York, the executive offices and showrooms at 57th St. and Broadway. The Mack catalogue contains specifications of Mack trucks of 3, 4, 5 and 7½ tons capacity of two types each. Type 1 is fitted with body having short loading platform, seat behind engine; Type 2 with a long loading platform with short wheel base. The Mack motor, "Mack" transmission gear, etc., are made in the Mack shops, which assures their quality and reliability. Various styles of bodies are shown in the catalogue, including piano delivery body, closed, open, stake, express, oil-tank, winch, loading-gear, dumping, lumber and sightseeing and other special bodies. Among the trucks sold for use in Southern States as shown in the catalogue are types of the 42 sold since April, 1910, to the Texas Company, used in St. Louis, New Orleans, Atlanta, Houston and Dallas; also the special 7½-ton dumping truck of A. G. Candler, Atlanta. The excellent work of the truck in Atlanta was recently referred to at length in these columns. The Saurer catalogue treats of the Saurer motor trucks in the same comprehensive way and contains the statement of proofs of its claims of quality, endurance, efficiency and economy. They are given as follows: "In more than twelve years no Saurer has ever worn out; they obtained first prize at the Paris Exposition in 1900; 53 first prizes in ten European contests in 1907-8-9 against 115 other manufacturers; subsidized by the French War Department; used by the Swiss and Bavarian governments for postal and omnibus service; crossed the American continent on a 5263-mile run in the summer of 1911 with a load of over three tons, being the first motor truck to accomplish this feat." Saurer trucks are shown in the various lines of transportation, and sectional drawings of motor, transmission gear, etc., are included. The advantages and economies in their use are stated with reasons for same and with references to competitive and other tests made.

ideas and equipment that are being developed every year. The attendance was especially good, and in the afternoons and evenings the Garden was crowded with visitors, all of whom displayed eager interest in the various products exhibited, and kept those in attendance busy answering questions and explaining details concerning them.

When it is considered that these shows are not operated for profit, but as a part of that broad educative publicity work that has always marked the progress of the cement industry and has proven so successful in strongly establishing the merits and advantages of cement before the public, there is no question but that these annual exhibitions are doing a splendid work, and it is only through the co-operation of those interested in the various branches of the cement and allied industries that this success is attained, and there is no question but that greater co-operation would produce still greater results.

These shows have become to be looked upon as an annual market for those seeking information or desire to purchase the latest improved equipment, and are valuable undertakings for this reason alone.

In order that the reader may have some definite idea of the character and scope of the products exhibited at the show this year the following brief summary of those participating is given:

Abbe Engineering Co., 220 Broadway, New York city: "Ideal" spiral feed for tube mills; cement laboratory machinery; pebble mills; grinding and pulverizing machinery.

Abby-Brooks Company, 3 Passaic St., Newark, N. J.: Koehring concrete mixers and Novold waterproofing compound.

Alexander Milburn Company, 605 Lombard St., Baltimore, Md.: Portable acetylene lights; oxy-acetylene welding and cutting apparatus, and acetylene-gas machines for house lighting.

Allentown Portland Cement Co., Allentown, Pa.: Allentown Portland cement and products made from it.

Alsen's American Portland Cement Works, 45 Broadway, N. Y.: Alsen's American Portland cement and products made from it.

American Mason Safety Tread Co., 190 N. Dearborn St., Chicago: Mason safety treads, lead or carbonium filled, and Karbolith magnesite flooring.

American Sawmill Machinery Co., 10 Church St., New York: Contractors' portable saw benches; model sawmill in operation; various machines for contractors' use.

American Steel & Wire Co., 72 W. Adams St., Chicago: Triangle mesh reinforcement.

American Vault Co., 587 Bergen St., Brooklyn, N. Y.: Concrete burial cases, reinforcement and molds for same.

Art Stone Co., Waynesboro, Pa.: Concrete products; concrete art mantle; decorative concrete; marble lumber; concrete lawn rollers, etc.

Ashland Steel Range & Manufacturing Co., Ashland, O.: U. S. Standard concrete mixer and U. S. Standard block machine.

Association of American Portland Cement Manufacturers, Philadelphia, Pa.: Transparencies illustrating all phases of concrete construction and bulletins devoted to specific uses of concrete.

Atlas Portland Cement Co., 30 Broad St., New York: Ornamental concrete; model of Panama Canal; model of Gatun locks and dam.

Automatic Stucco Machine Co., Port Chester, N. Y.: Automatic stucco machines and demonstrations of their use.

Bath Portland Cement Co., Bath, Pa.: Bath Portland cement and products made from it.

Billings-Chapin Company, Cleveland, O.: Samples of "Drival" and "Bilchaco" coatings, and their waterproofing and decorative qualities on cement or brick slabs.

Blaw Collapsible Steel Centering Co., Pittsburgh, Pa.: Curb, sidewalk, sewer, aqueduct, tunnel, subway, retaining wall and general concrete construction forms and models; model of Panama Canal; collapsible arch ribs on bridge construction.

Blystone Manufacturing Co., Cambridge Springs, Pa.: Blystone hatch concrete mixers, with power, mounted on skids, on hand trucks and on horse-drawn trucks.

Brown Hoisting Machinery Co., Cleveland, O.: Cranes and buckets for handling all kinds of material; "Ferrolinclave," sheet steel reinforcement for concrete; miniature parabolic bins for power plants.

Samuel Cabot, Inc., Boston, Mass.: Waterproof cement and brick stains for interior or exterior decorating; damp and water proofings; lampblack tinting; sheathing quilt for sound deadening.

Carnegie Steel Co., Pittsburgh, Pa.: Metal cabinets for buildings and portable tracks.

Cement Appliances Co., 535 Fifth Ave., New York: "C-A-C" cement gun and auxiliary apparatus.

Century Cement Machine Co., Rochester,

THE NEW YORK CEMENT SHOW.

[Special Correspondence Manufacturers Record.]

New York, February 5.

The second annual New York Cement Show, held all last week at the Madison Square Garden under the auspices of the Cement Products Exhibition Co., well demonstrated by the number and character of exhibits and large daily attendance the great interest that is centered in cement and cement products and the desire to keep in touch with the new developments that are being brought out during each year.

Additional interest was centered in the show, too, on account of the annual conventions of the National Builders' Supply Association and the National Lime Manufacturers' Association, both of which were in session during the week, thus bringing together a great many of those from all parts of the country who were directly interested in products exhibited at the show.

Among the most striking features of the show to the observer were the artistic and symmetrical manner in which the huge Garden was decorated and the booths arranged. All of the booths proper were of similar design and constructed of cement-coated material, so that the whole effect was impressive and thoroughly in keeping with the products the show was exhibiting. Surmounting the columns and pilasters at the junction of each booth were clusters of three large lights, while suspended from the ceiling were numerous flaming arc lamps, all of which provided a brilliant and beautiful lighting

effect. The ceiling was covered with a neatly-designed green and white canopy, while at either end of the garden, extending from the floor of the balcony to the ceiling, were immense mural decorations showing a suburban dwelling section in which the buildings, sidewalks and other structural features were of cement. Thus indeed was a beautiful and artistic setting provided that created a most favorable impression upon the visitor immediately upon his entrance.

The exhibits were so diversified that much was found to interest everyone, whether he was directly interested as an architect, engineer or contractor or a layman seeking a broader knowledge concerning the possibilities of cement. In fact, in this show could be found practically every one of the materials, appliances, machinery or accessories that are today used in cement and concrete work of every kind. Thus these shows tend to demonstrate to the visitor the substantial character of the industry and the magnitude of its extent and ramifications, and also to convey to them convincing and first-hand evidence of the durability, fireproof, sanitary and economical advantages of cement construction. In other words, this show served the purpose of bringing the architect, engineer and contractor and others interested in every class of construction work, as well as the general public, in close, personal touch with the great progress cement has made as a construction material and the new

N. Y.: Hercules cement block machines in operation and exhibit of ornamental stone made by Hercules machines.

Ceresit Waterproofing Co., 72 W. Adams St., Chicago: An exhibit of cement and concrete and integral waterproofing by "Ceresit," showing its water-repelling qualities.

Chain Belt Co., Milwaukee, Wis.: Chain belt concrete mixer and concrete elevator and gravity distributing system.

Clinion Wire Cloth Co., Boston, Mass.: Wire cloth.

Cockburn Company, Jersey City, N. J.: Cockburn cubical concrete mixer; concrete block machine; Cockburn grout mixer and ejector; Aero pulverizer; Lockwood automatic bucket.

Concrete Steel Co., 29 Broadway, New York: Concrete reinforcing bars, safety treads, etc.

Consolidated Expanded Metal Co., Centurion Bldg., New York: Expanded metal and Simpson "Xpantrus" bar for concrete reinforcement; metallic laths, steel channels and sheared plates.

Corrugated Bar Co., Buffalo, N. Y.: "Corr Products": Corrugated square bars for reinforcing concrete; corrugated round bars for reinforcing concrete; Corr-Bar beam units; fabricated column spirals; Corr-Mesh; Corr-Plate floor (model); Corr-Tile floor (model); slab bar spacers; Corr-Bar-O waterproofing materials; Corr-Bar-O concrete paints.

Crown Point Spar Co., 21 W. 4th St., New York city: "Granite Crystals," crushed rock to add color.

Crescent Sand & Gravel Co., Whitehall Bldg., New York: Sand, gravel and grit.

Detroit Steel Products Co., Detroit, Mich.: "Fenestra" solid steel windows and Crittall metal casements.

Deutsch System of Detachable Concrete Construction, New Haven, Conn.: Model concrete house, made in detachable units by Deutsch system.

Dexter Bros., Boston, Mass.: Petrifax, a damp-resisting coating for exterior or interior concrete, stucco and brick; Petrifax enamel, a gloss over Petrifax; Roman Calx, decorative interior coating, and Dextrolite, decorative interior enamel.

Eastern Cement Gun Co., Wilmington, Del.: "Cement Gun" in operation.

Elite Manufacturing Co., Ashland, O.: Concrete mixers and scaffold brackets.

Erkins Studios, 27 Lexington Ave., New York city: Various works of art, vases, statues, pedestals, manufactured from Pompeian stone or art stone.

Eureka Machine Co., Lansing, Mich.: Concrete mixers and mortar mixers.

Robert Fisher, 207 Eighth Ave., New York city: Bar benders and cutters.

Footo-Ehrbar-Wilcox Company, 55 Washington St., New York: "Footo" concrete mixers; diaphragm pumps, gasoline driven; Concrete shovels.

Gardner Crusher Co., 556 W. 34th St., New York city: Stone-crushing machinery.

Goodwin Sand & Gravel Co., 71 Broadway, New York city: Sand, gravel and grit.

Hains-Weaver Concrete Mixer Co., 21 Park Row, New York: Concrete mixer.

Wm. G. Hartman Co., Philadelphia, Pa.: Garden and lawn furniture made of Old Dominion, Penn.-Allen and Phoenix Portland cement.

Hayden Automatic Block Machine Co., Columbus, O.: Block machines; cement molds; concrete batch mixers.

Hayward Company, 50 Church St., New York city: Automatic clam shell buckets; automatic orange peel buckets; drag scraper buckets in actual work; standard orange peel buckets; multi-power orange peel buckets; three-sided orange peel buckets; clam shell buckets, classes "C," "E" and "H"; drag scraper buckets in working models.

Hennebique Construction Co., 113 Broadway, New York city: Photographs of various structures of their erection and pamphlets on engineering and construction work. Benjamin A. Howes, 15 W. 38th St., New York: Exhibit illustrating unburnable construction.

Robert W. Hunt & Co., 90 West St., New York city: Complete cement-testing laboratory in operation; machines to test concrete and reinforcing steel; special tests of cement and sand mixture and of concrete.

International Bureau of Consultation, New York city: Various cements and their raw materials; materials for concrete; cement colors and paints; apparatus and literature for testing; photographs, diagrams, literature and samples of cement uses.

Jacobson & Co., 241 E. 44th St., New York city: Cement mantels and other objects of cement.

Jaeger Machine Co., Columbus, O.: Jaeger-Kay hydraulic pressure-concrete stone machine; equipments for concrete-products factories.

H. W. Johns-Manville Company, 100 William St., New York city: J-M asbestos shingles, wood, ready roofings, built-up roofings and stucco; J-M waterproofing coatings, felts, fabrics; J-M corrugated roofing; J-M Asbestoside.

Jones & Hetzel, Streator, Ill.: Sidewalk, steel curb and gutter and collapsible steel tank forms; rotary floating and finishing tools; curb and gutter templates.

Kent Machine Co., Kent, Ohio: "Kent" portable precision concrete mixer; "Kent" stationary precision concrete mixer in continuous operation; demonstrating feed hoppers; mortar mixer.

Keystone Varnish Co., 71 Otsego St., Brooklyn, N. Y.: Keystone wall finish; Kayeco for damp walls; concrete binder and preservative for floors.

Keystone Waterproofing Co., 2 Rector St., New York: Keystone waterproof cement and powder; Keystone Konkrete and Water-tite Koatings; Imitation Caen stone cement; heat-resisting paint.

The Knickerbocker Company, Jackson, Mich.: Coltrin concrete mixers.

Kramer Automatic Tamper Co., Peoria, Ill.: Automatic concrete block tamper and concrete block machines and their products.

La Grange Specialty Co., La Grange, Ind.: The Little Giant brick machine; the Acme tile machine; the Leader post machine; the Acme post machine.

Lansing Company, Lansing, Mich.: Concrete mixers and concrete and mortar carts and barrows.

Lock Joint Pipe Co., 165 Broadway, New York: Reinforced concrete pipes and reinforced concrete telegraph poles.

Lock Tile Drill Co., 141 Liberty St., New York: The Percussion drill for holes in concrete, brick or stone.

David Lupton's Sons Company, Philadelphia, Pa.: Lupton steel sash; Pond continuous sash; Pond operating device for windows; Lupton rolled steel skylight; designs for light and ventilation, photographs and installations.

Marbolith Stone Co., Tuckahoe, N. Y.: Stucco plaques and artificial stone ornaments and crushed marble exhibit.

Miles Manufacturing Co., Jackson, Mich.: Simplex concrete mixer, cement block machines and molds.

Clifford L. Miller & Co., 110 E. 23d St., New York: "The Curry Bag Tye" for bagging and for binding reinforced rods in concrete construction.

Minwax Company, 1123 Broadway, New York city: Minwax waterproofings and damp-proofings; Minwax floor finish; Minwax brick, cement, roof and structural steel coatings; Minwax stone backing and expansion joint cements.

Monument Plaster Co., Harrison, N. J.: Lath, mortar, Oriental stucco, etc.

New Hygienic Refrigerator Co., Indianapolis, Ind.: Hygienic waterproof cement refrigerator.

Norwalk Vault Co., Norwalk, O.: National burial vaults and molds, and National water trough vault and mold.

Novo-Engine Co., Lansing, Mich.: Novo gasoline engines and iron castings.

Ohio Post Mold Co., Nicholas Bldg., Toledo, O.: Battery of post molds to make 30 concrete posts at one time; battery of post molds to make 20 concrete posts at one time; Anchor post molds; concrete fence with three line posts and two end posts.

Pennsylvania Cement Co., 29 Broadway, New York: Reproduction of "Geronimo's Tomb" and other products of Pennsylvania cement.

Peerless Brick Machine Co., Minneapolis, Minn.: Peerless cement brick machine in operation and pure oxide colors for concrete.

D. & A. Post Mold Co., Three Rivers, Mich.: D. & A. post molds; D. & A. anchor post mold (their products and methods of reinforcement); tie wires and twisters for fastening fence to post.

Raber & Lang Manufacturing Co., Kendallville, Ind.: Crescent continuous mixer; Crescent vertical tamping brick machine; Crescent power tile machine; display of cement sewer pipe, drain, tile and common and fancy cement bricks.

Read & Morrill Molds Corporation, 223 E. 17th St., New York: Steel forms showing process of pouring houses; models of poured houses; bungalows, etc.; model of the concrete city built for the D. L. & W. R. R.; sketches and color sketches.

Saggen Bros., 2063 Racine Ave., Chicago: Derrick (circle swing, pole and setter).

Scandinavia Belting Co., 127 White St., New York: Scandinavia belting and oilless bearings for transmission and wheels.

M. L. Schlueter, 104 N. Canal St., Chicago: Electric floor surfacing machines.

Simpson Cement Mold Co., 115 Vine St., Columbus, O.: Iron molds for concrete porch trimmings and for ornamental blocks.

L. Sonneborn Sons, Inc., 262 Pearl St., New

York: "Cemcoat" colored coating for cement building and floors, and "Hydrocid," damp-proofing used in building construction.

Standard Paint Co., 100 William St., New York: Insulating and sheeting papers, tapes, varnishes and compounds; Ruberoid roofings and floorings; preservative damp-proofing and roof paints; Flexite metal preservative damp-proofing and roof paints; Flexite metal preservative paints.

Standard Scale & Supply Co., 136 W. Broadway, New York: Low-charging Eclipse concrete mixer; Eclipse stone or block machine; gasoline engine; pumping outfit; concrete carts and barrows.

Stowell Manufacturing Co., 240 Culver Ave., Jersey City, N. J.: Trinidad asphalt roofings and roofing felts; milled granite; Monarch waterproof white granite stucco and waterproof blocks.

Toch Bros., 320 Fifth Ave., New York city: R. I. W. "Anhydrosol," "Toxloxpore" and "Toxement" paints for waterproofing; "Liquid Konkerit," "Tockolith" and "Cement Filler" cement paints for floors and metals.

C. A. P. Turner, Minneapolis, Minn.: Mushroom system of construction.

Turner Construction Co., 41 Broadway, New York city: Scale model of reinforced concrete building; photographs and transparencies showing interiors and exteriors of buildings erected by Turner Construction Co.; column section, showing the arrangement of spiral reinforcement; photographs of Turner's concrete city.

Twentieth Century Tile Roofing Co., Rochester, Mich.: Satterlee cement and shingle machinery, shingles and molds and roof exhibit, showing cement shingles.

Unit Brick & Tile Co., 1123 Broadway, N. Y.: An exhibit of Unit cement tile and Unit cement brick.

Union Iron Works, Hoboken, N. J.: Concrete pile-driving machinery.

Universal Portland Cement Co., Chicago-Pittsburgh: Display of ornamental concrete and scenographic model of plant No. 5 at Universal, Pa. A display illustrating the proper methods of tying and handling cement sacks and an exhibition illustrating the information service offered by the Universal Portland Cement Co.

Van Guilder Hollow Wall Co., Rochester, N. Y.: Machines for building double monolithic steel reinforced concrete walls with continuous air space.

Vulcanite Portland Cement Co., New York city: Model silos, cow barns, drinking troughs, cesspools and other concrete farm appliances.

Charles Warner Company, Wilmington, Del.: Tablets, posts, panels, copings, slabs and various artistic forms of stucco made from Alca, Lime, Limoid and Nazareth cement, and fountains and urns.

C. S. Wert, Kendallville, Ind.: The Perfect brick machine; the Perfect brick molds; the Perfect well and cistern molds.

Whitehall Cement Manufacturing Co., Philadelphia, Pa.: Ornamental work in Whitehall Portland cement.

Zelzer Bros., Berwick, Pa.: All-steel sidewalk forms; steel dividing plates; steel templates for curb and gutter construction.

Wemlinger Steel Piling Co., New York: Wemlinger steel sheet piling; Lewis specification products for water, damp, acid, rust and frost proofing; concrete aquarium waterproofed with Lewis waterproofing; publications concerning Lewis specifications.

Dolarway Paving Co., 95 Liberty St., New York: An exhibit of "Dolarway" paving.

Illinois Steel Co., Chicago, Ill.: Reinforcing steel for concrete construction.

National Builders' Supply Convention

As previously stated, the National Builders' Supply Association held its thirteenth annual convention in New York last week, being attracted here by reason of the Cement Show. A large number of members were in attendance and a most interesting program was provided.

Among the papers read were the following: "Industry as Related to Labor," by Hon. Seth Low, president of the National Civic Federation and former Mayor of the city of New York.

"Auto Trucks," by Mr. Irving Warner of the Charles Warner Company, Wilmington, Del., who has been making this topic a practical study for the past four years.

"Legal Reforms," by Mr. Charles Freeman Johnson, director of the National Legal Reform Association.

"Profit and Loss of Our National Association," by Mr. J. C. Adams of the D. J. Kennedy Company, Pittsburgh, Pa.

"Lien Laws," by Hon. Thomas Goldengay, chairman of a committee appointed by the Mason Material Dealers' Association of New Jersey for the purpose of studying the defects in the present lien law in that State and of making recommendations as to changes necessary to make the present law

a satisfactory one from the builders'-supply dealer's point of view.

"The Value of Cement Shows to the Manufacturer and Dealer," by Mr. Edward H. Hagar, president Universal Portland Cement Co. and president Cement Products Exhibition Co.

Each of these papers was followed by discussions on the part of those members directly interested in the subject, so that many valuable personal thoughts and experiences were brought out, all of which tended to create a broader and more complete knowledge of the matters under discussion.

The following officers were elected for the ensuing year: President, Charles Warner, Wilmington, Del.; treasurer, Henry W. Classen, Baltimore, Md.; vice-presidents, D. T. Hargraves, Helena, Mont.; C. J. Waterhouse, San Francisco; Frank H. Johnston, New Britain, Conn.; Chas. C. Bye, Wilmington, Del.; S. Dana Lincoln, Washington, D. C.; P. G. Hanahan, Atlanta, Ga.; H. H. Halliday, Cairo, Ill.; A. E. Bradshaw, Indianapolis, Ind.; Owen Tyler, Louisville, Ky.; E. H. Michel, New Orleans, La.; John J. Kelly, Jr., Baltimore, Md.; B. F. Marsh, Worcester, Mass.; S. R. Moorman, Grand Rapids, Mich.; John Wharry, St. Paul, Minn.; Howard McCutcheon, Kansas City, Mo.; James H. Allen, Lincoln, Neb.; Walter C. Schultz, Hoboken, N. J.; Henry Schaefer, Jr., Buffalo, N. Y.; George Gengnagle, Dayton, O.; J. N. Thayer, Erie, Pa.; Edward D. Allen, Providence, R. I.; A. C. Gover, Greenville, N. C.; W. T. Hardeson, Nashville, Tenn.; Lovell Marston, Houston, Tex.; T. P. Jones, Wheeling, W. Va.; S. W. R. Daily, Seattle, Wash.; H. H. Plummer, Menasha, Wis.

In the re-election of Mr. Warner as president the association is to be congratulated. Ever since serving in this responsible position he has taken a deep personal interest in directing its affairs, and has suggested and put into force new ideas and encouraged other advancements, all of which have tended to promote and conserve the best interests of the organization and make it a greater power for good to its members.

Lime Manufacturers' Meeting.

The National Lime Manufacturers' Association also held its annual convention here during the week, and as shown by the following list of papers read and discussed, many important and interesting phases of the industry were covered:

"The Use of the Rotary Kiln in the Manufacture of Lime," by J. G. Jones, Carthage, N. Y., president of the New York Lime Co., Natural Gas, N. Y.

"Gas Producers and Gas Limekilns, Particularly for Natural Draft and Natural Pressure," by Ernest Schmatolla, Washington, D. C., chemical engineer.

"Suggested Methods for Improving Kiln Economies," by J. E. Forgy, Wilmington, Del.

"Heat Efficiency of Limekilns," by Warren E. Emley, Pittsburgh, Pa., chemical engineer and investigator of lime for the United States under the Bureau of Standards.

"A Cost and Time Study of Big Blast Hole Drilling," by R. R. Sanderson, Orrville, O., of the Cyclone Drill Co.

"Well Drill Hole Blasting," by S. R. Russell, Wilmington, Del., of the E. I. DuPont de Nemours Powder Co.

"Review of the Year's Work in the Development of Alca Limes," by Henry S. Spackman, Philadelphia, Pa., president of the Aluminate Patents Co.

"The Practical Use of Alca for Outside and Inside Plastering," by C. Pierce, Wilmington, Del.

"The Modern Manufacturers of Hydrated Lime," by Richard K. Meade, Baltimore, Md., chief engineer for Tidewater Portland Cement Co.

"Requirements in Fire-Brick for Limekiln Arches and Linings," by W. L. Hamilton, Mt. Savage, Md., superintendent Union Mining Co.

"Business Panics and Why They Occur," by William E. Carson, president of the Virginia Branch of the National Citizens' League for the Promotion of a Sound Banking System.

"Is the Recommendation that Only Ground Limestone Should Be Used for Agricultural Purposes a Sound and Rational One?" by H. J. Wheeler, Kingston, R. I., professor of agronomy and chief of the Rhode Island Experiment Station of the United States Government.

"Why We Don't Know About Lime, and the German Viewpoint of the Uniform Testing of Lime," by E. W. Lasell, Wilmington, Del., chief engineer and manager of the technical department of the Security Cement & Lime Co. and the Berkeley Limestone Co.

"The Testing of Commercial Limes," by S. E. Young, Pittsburgh, Pa., assistant engineer in the investigation of lime under the

supervision of the Bureau of Standards for the United States Government.

"The Target for the Reduction of Lime Manufacturing Costs," by Irving Warner, Wilmington, Del., general plant manager for the Charles Warner Company.

"The Development of the Lime Plant," by Charles Ekstrand, New York, N. Y., consulting engineer and designer of lime plants.

"The Rate Decomposition of Limestone Under Heat," by Warren E. Emley, Pittsburgh, Pa.

"Crushed Limestone in Concrete Fireproof Construction Work," by Rudolph J. Wig, Washington, D. C., concrete engineer on the investigating force of the Bureau of Standards.

"The Use of Limestone in Building Highways, with Hints on Preparation," by L. W. Page, Washington, D. C., director of the United States Office of Public Roads and president of the American Association for Highway Improvement.

"Business Organization and Efficiency," by H. F. Porter, industrial engineer, and Dr. Lee Galloway of Alexander Hamilton Institute.

In view of the increasing demand and the broader field for lime products of various kinds, special interest has been attached to new ideas in the industry, and, as will be noted from the character and scope of the papers, an aim was made to bring before the members the very latest obtainable facts and results from those who have made special study and investigation of each particular subject, the result being that every member attending this convention learned many things that will unquestionably be of much assistance to them for keeping in touch with the progress that has been made and for adjusting their business to meet present conditions.

Officers elected for the ensuing year were as follows: President, W. E. Carson, River-ton, Va.; first vice-president, J. King McLanahan, Jr., Hollidaysburg, Pa.; second vice-president, A. M. Glasgow, Knoxville, Tenn.; third vice-president, R. C. Brown, Oshkosh, Wis.; secretary, Fred K. Irvine, Chicago; treasurer, C. W. S. Cobb, St. Louis, Mo.; executive committee, Wm. E. Carson, Charles Warner and Walter S. Sheldon.

FINANCIAL NEWS

Review of the Baltimore Market.

Office MANUFACTURERS RECORD,

Baltimore, Md., February 7.

The Baltimore stock market continued active during the past week, especially in the speculative issues. In the trading United Railways common rose from 20 3/4 to 21, but from that point gradually declined to 19; do. incomes rose from 6 1/2 to 6 5/8, reacting to 6 1/4; do. funding 5s, 87 1/2 to 87 1/4; do. notes, 100 to 100 1/4; United 4s, 85 3/4 to 85 1/2; United Electric Light & Power 4 1/2s, 95; Consolidated Gas, Electric Light & Power common, 105 to 109; do. preferred, 106 to 110; do. 4 1/2s, 90 to 89 1/4; do. notes, 100; Consolidated Gas 5s, 109 1/4; do. 4 1/2s, 97 to 97 1/2; Seaboard Company common, 25 1/2; do. second preferred, 63 1/4 to 62 1/2; do. 4s, stamped, 88; G. B. S. Brewing incomes, 3 1/2; do. 4s, 36 to 34 1/2.

Bank stock sold as follows: Exchange, 100; Merchants', 185; Commerce, 30 1/2; Baltimore, 164 1/4.

Maryland Trust common sold from 90 1/2 to 110 on rumors of a deal, but reacted to 106; do. preferred, 116 to 118; Maryland Casualty, 97 to 98 1/2; Fidelity & Deposit, 151 to 152; Baltimore Trust, 107 to 169 1/2; Mercantile Trust, 132; Colonial Trust, 127 1/2.

Other securities were traded in thus: Baltimore City 4s, 196 1/4, 101 1/4; do. 1937, 100 1/2 to 100 3/4; City & Suburban (Baltimore) 5s, 105 to 105 1/2; Maryland & Pennsylvania incomes, 65 1/2 to 65; Baltimore, Sparrows Point & Chesapeake 4 1/2s, 97 1/2; Seaboard & Roanoke 5s, 106 1/2 to 106 3/4; Augusta & Aiken common, 29; do. preferred, 79 1/2 to 82; Atlantic Coast Line convertible debenture 4s, 101 1/2 to 101 3/4; Baltimore Electric 5s, stamped, 97 to 96 1/4; Houston Oil common, trust certificates, 9 1/2 to 9 3/4; do. preferred, trust certificates, 58 1/4 to 57 1/2, reacting to 57 1/2; Houston Oil dividend obligation, 88 to 83; Georgia & Alabama Consolidated 5s, 107 1/2; Maryland & Pennsylvania common, 34 to 30, recovering to 33; Pennsylvania Water & Power common, 63 1/2 to 62 1/2; do. 5s, 92 1/2 to 92 1/4; United States Steel common, 61 1/4; Milwaukee Refunding 4 1/2s, 94 1/4; Norfolk & Portsmouth Traction 5s, 89 1/2; Baltimore Electric preferred, 44 1/4 to 43 1/4; Baltimore Brick

5s, 84 1/2; Maryland Electric 5s, 90 1/4; New Orleans, Mobile & Chicago 1st 5s, 94 1/4 to 94 1/2; Norfolk Railway & Light 5s, 100 1/2; Fairmont & Clarksburg Traction 5s, 100 1/2 to 100 3/4; Georgia Pacific 1st 6s, 113; Northern Central Railway stock, 127 1/2; Petersburg B. 6s, 117 1/4; Fairmont & Clarksburg Traction common, 90; Newport News & Old Point 1st 5s, 97 1/2; Virginia Railway & Power 5s, 96 1/2 to 96 1/4; Fairmont Coal 5s, 97; Atlantic Coast Line Consolidated 4s, 94 1/4; Baltimore & Annapolis Short Line 5s, 70 1/2; Maryland Life Insurance, 40; Consolidation Coal, 101 to 100; Coal & Coke Railway 5s, 96 1/2 to 97; Macon, Dublin & Savannah 5s, 102; Chicago Railways 5s, 101; Consolidation Coal refunding 5s, 93 1/2; Jamison Coal & Coke, George's Creek 5s, 95; Virginia Midland 5th, 106 1/2; Kirby Lumber Co., 8; Knoxville Traction 5s, 106 1/4; Atlanta Consolidated Street Railway 5s, 105 1/4; Milwaukee Electric 5s, 105; Nashville Street Railway 5s, 104; Atlantic Coast Line of Connecticut 5-20s, 92; Lake Roland Elevated 5s, 108 1/4; Georgia Southern & Florida 5s, 107 1/4; Baltimore Traction (North Baltimore Division) 5s, 111.

SECURITIES AT BALTIMORE.

| Last Quotations for the Week Ended February 7, 1912. | | |
|------------------------------------------------------|------|-------------|
| Railroad Stocks. | Par. | Bid. Asked. |
| Atlantic Coast of Conn. | 100 | 259 264 |
| Fairmont & Clarks. Trac. Pfd. | 100 | 88 1/2 |
| Fairmont & Clarks. Trac. Pfd. | 100 | 83 85 1/2 |
| Georgia Sou. & Fla. | 100 | 35 |
| Georgia Sou. & Fla. 1st Pfd. | 100 | 95 |
| Georgia Sou. & Fla. 2d Pfd. | 100 | 75 |
| Maryland & Pennsylvania | 100 | 25 35 |
| Norfolk Railway & Light | 100 | 25 |
| Seaboard Co. Comm. | 100 | 25 |
| Seaboard Co. 2d Pfd. | 100 | 62 1/2 |
| United Rys. & Elec. Co. | 50 | 19 19 1/2 |
| Virginia R. & P. Common | 100 | 47 1/4 |
| Virginia R. & P. Pfd. | 100 | 90 |

| Bank Stocks. | | |
|----------------------|-----|-------------|
| Bank of Baltimore | 100 | 164 1/4 |
| Citizens' | 10 | 40 |
| City | 100 | 100 110 |
| Drovers & Mechanics' | 100 | 210 |
| Exchange | 100 | 162 |
| Farmers & Merchants' | 40 | 49 51 |
| First National | 100 | 130 135 |
| German | 100 | 108 |
| Howard | 10 | 14 |
| Marine | 30 | 43 |
| Mechanics' | 10 | 29 29 1/2 |
| Merchants' | 100 | 182 185 1/4 |
| Union | 100 | 134 |

| Trust, Fidelity and Casualty Stocks. | | |
|--------------------------------------|-----|-------------|
| American Bonding | 25 | 77 |
| Baltimore Trust | 100 | 169 1/2 170 |
| Colonial Trust | 50 | 27 1/2 28 |
| Continental Trust | 100 | 220 225 |
| Fidelity & Deposit | 50 | 151 153 |
| Fidelity Trust | 100 | 222 |
| Maryland Trust | 100 | 106 110 |
| Maryland Trust Pfd. | 100 | 118 119 |
| Mercantile Trust & Deposit | 50 | 88 89 1/2 |
| Maryland Casualty | 50 | 152 153 |
| Title Guarantee & Trust | 100 | 160 |
| U. S. Fidelity & Guaranty | 100 | 179 180 |

| Miscellaneous Stocks. | | |
|-------------------------------|-----|----------------|
| Con. Gas, Elec. Lt. & P. Com. | 100 | ... |
| Con. Gas, Elec. Lt. & P. Pfd. | 100 | ... |
| Consolidation Coal | 100 | 99 1/2 100 1/2 |
| G. B. S. Brewing Co. | 100 | 1 |
| Baltimore Electric Pfd. | 100 | 43 1/2 44 1/4 |

| Railroad Bonds. | | |
|---------------------------------|---------|---------|
| Atlanta & Birmingham 4s. | 88 | ... |
| Atlantic Coast 1st 4s. | 96 1/4 | 96 1/2 |
| Atlantic Coast Cons. Deben. 4s. | 101 1/2 | ... |
| At. Coast (Conn.) 4s. Cfs. | 21 | ... |
| Atlantic Coast (Conn.) 5s. Cfs. | 104 | ... |
| Atlantic Coast R. R. 4s. Cfs. | 85 | 90 |
| Carolina Central 4s. | 93 1/2 | 94 1/4 |
| Charleston & West. Car. 5s. | 106 1/2 | 107 |
| Coal & Coke Railway 5s. | 96 | 97 |
| Coal & Iron Railway 5s. | 101 1/4 | ... |
| Florida Cent. & Pen. 5s. | 107 1/2 | 108 1/2 |
| Florida Southern 4s. | 92 1/2 | 107 |
| Georgia & Alabama 5s. | 107 | 107 1/2 |
| Georgia & Florida 5s. | 74 1/2 | 75 |
| Georgia, Car. & North 1st 5s. | 105 1/2 | ... |
| Georgia South. & Fla. 1st 5s. | 107 1/2 | ... |
| Macon, Dublin & Sav. 5s. | 102 | 102 1/2 |
| New Orleans Gt. Nor. 5s. | 75 | 76 1/4 |
| Norfolk & Carolina 5s. | 110 | ... |
| Petersburg Class B 6s. | 117 | ... |
| Potomac Valley 1st 5s. | 108 | ... |
| Seaboard 4s. Stamped | 88 | 89 |
| Seaboard Adjustment 5s. | 89 1/4 | 89 1/2 |
| Seaboard & Roanoke 5s. | 106 | ... |
| Suffolk & Carolina 5s. | 105 | 107 |
| Virginia Midland 5th 5s. | 106 1/2 | 107 |
| Virginia Midland 6th 5s. | 107 | ... |
| Virginia Midland G. M. 5s. | 108 | 108 1/2 |
| Western Maryland 4s. | 87 1/2 | 88 |
| Western N. C. Con. 6s. | 103 | 105 |
| Wilmington & Weldon 5s. | 109 | 111 |
| Wash., Balto. & Annap. 5s. | 83 1/4 | 84 |

| Street Railway Bonds. | | |
|-----------------------------------|---------|---------|
| Anacostia & Potomac 5s. | 100 1/2 | 101 |
| Atlanta Con. St. Ry. 5s. | 105 | 105 1/2 |
| Augusta Railway & Electric 5s. | 103 | 104 |
| Balto., Sp. Pt. & C. 4 1/2s. | 97 | 97 1/2 |
| Baltimore Traction 1st 5s. | 100 | ... |
| Baltimore Traction (N. B.) 5s. | 112 | ... |
| Charleston City Railway 5s. | 104 1/2 | ... |
| Charleston Con. Electric 5s. | 96 1/2 | ... |
| Citizens' R. L. & P. Co. N. 5s. | 105 1/2 | 105 1/2 |
| City & Suburban 5s (Balto.) | 102 1/2 | ... |
| City & Suburban 5s (Wash.) | 102 1/2 | ... |
| Fairmont & Clarksburg Trac. 5s. | 100 1/2 | 100 1/2 |
| Fairmont & Clarksburg Trac. Notes | 101 | ... |
| Knoxville Traction 5s. | 106 1/2 | ... |
| Lake Roland Elevated 5s. | 108 1/2 | 109 |
| Macon Railway & Light 5s. | 100 1/2 | 101 1/2 |
| Maryland Electric Railways 5s. | 99 1/2 | 99 1/2 |
| Newport News & Old Point 5s. | 70 | 70 |
| Newport News & Old Pt. G. M. 5s. | 89 1/2 | 90 |
| Norfolk & Portsmouth Trac. 5s. | 89 1/2 | 90 |
| Norfolk Railway & Light 5s. | 100 1/2 | 100 1/2 |
| Norfolk & Atlantic Terminal 5s. | 95 | ... |
| United Railways 1st 4s. | 85 1/2 | 85 1/2 |
| United Railways Income 4s. | 64 1/2 | 64 1/2 |
| United Railways Funding 5s. | 87 | 87 1/2 |

| | | |
|---------------------------|---------|---------|
| United Railways Notes 5s. | 100 1/2 | 100 1/2 |
| Virginia R. & P. 5s. | 96 | 96 1/2 |

SOUTHERN COTTON-MILL STOCKS.

Quotations furnished by William S. Glenn, Broker, Spartanburg, S. C., for Week Ending February 5.

| | Bid. | Asked. |
|-----------------------------------|------|--------|
| Abbeville Cotton Mills (S. C.) | 75 | ... |
| Alken Mfg. Co. (S. C.) | 80 | ... |
| American Spinning Co. (S. C.) | 100 | ... |
| Anderson Cotton Mills (S. C.) | 100 | ... |
| Anderson Cot. Mills (S. C.) Pfd. | 100 | ... |
| Arcadia Mills (S. C.) | 92 | ... |
| Arkwright Cotton Mills (S. C.) | 99 | 100 |
| Belton Mills (S. C.) | 105 | 120 |
| Brandon Mills (S. C.) | 90 | 103 |
| Brogan Mills (S. C.) | 90 | ... |
| Chiquola Mfg. Co. (S. C.) | 170 | ... |
| Clifton Mfg. Co. (S. C.) Pfd. | 97 | ... |
| Clinton Cotton Mills (S. C.) | 160 | ... |
| Courtenay Mfg. Co. (S. C.) | 96 | 100 |
| Dallas Mfg. Co. (Ala.) | 99 | ... |
| Darlington Mfg. Co. (S. C.) | 80 | ... |
| D. E. Converse Co. (S. C.) | 90 | ... |
| Drayton Mills (S. C.) | 95 | 100 |
| Eagle & Phenix Mills (Ga.) | 117 | ... |
| Easley Cotton Mills (S. C.) | 162 | 175 |
| Enoree Mfg. Co. (S. C.) | 73 | 62 |
| Enoree Mfg. Co. (S. C.) Pfd. | 96 | 100 |
| Gaffney Mfg. Co. (S. C.) | 57 | 60 |
| Gainesville Cotton Mills (Ga.) | 72 | 80 |
| Glenwood Cotton Mills (S. C.) | 130 | 150 |
| Grantville Mfg. Co. (S. C.) | 140 | 145 |
| Greenwood Cotton Mills (S. C.) | 57 | 60 |
| Grendel Mills (S. C.) | 90 | 100 |
| Hartsville Cotton Mill (S. C.) | 160 | ... |
| Henrietta Mills (N. C.) | 175 | ... |
| Irwin Mills (S. C.) | 100 | 105 |
| King Mfg. Co. J. P. (Ga.) | 80 | 85 |
| Lancaster Cotton Mills (S. C.) | 130 | ... |
| Lancaster Cot. Mills (S. C.) Pfd. | 97 | 100 |
| Langley Mfg. Co. (S. C.) | 104 | 112 |
| Laurens Mills (S. C.) | 120 | 135 |
| Limestone Mills (S. C.) | 155 | 160 |
| Lockhart Mills (S. C.) | 90 | 100 |
| Loray Cotton Mills (N. C.) Pfd. | 95 | 95 |
| Mariboro Cotton Mills (S. C.) | 102 | 102 |
| Mills Mfg. Co. (S. C.) | 102 | 102 |
| Molokoh Mfg. Co. (S. C.) | 95 | ... |
| Monaghan Mills (S. C.) | 100 | ... |
| Monarch Cotton Mills (S. C.) | 105 | 110 |
| Newberry Cotton Mills (S. C.) | 125 | 130 |
| Ninety-Six Cotton Mill (S. C.) | 130 | 150 |
| Norris Cotton Mills (S. C.) | 121 | ... |
| Olympian Cotton Mills (S. C.) | 90 | 93 |
| Ort Cotton Mills (S. C.) | 90 | 93 |
| Pacolet Mfg. Co. (S. C.) | 90 | 90 |
| Pacolet Mfg. Co. (S. C.) Pfd. | 95 | 100 |
| Parker Common | 25 | 25 |
| Parker Preferred | 65 | ... |
| Pelzer Mfg. Co. (S. C.) | 130 | ... |
| Piedmont Mfg. Co. (S. C.) | 175 | 177 |
| Poe Mfg. Co. F. W. (S. C.) | 110 | 115 |
| Saxon Mills (S. C.) | 130 | 130 |
| Spartan Mills (S. C.) | 120 | 130 |
| Trian Mfg. Co. (Ga.) | 130 | 130 |
| Tucapau Mills (S. C.) | 300 | 350 |
| Union-Buffalo (S. C.) 1st Pfd. | 60 | ... |
| Union-Buffalo (S. C.) 2d Pfd. | 15 | ... |
| Victor Mfg. Co. (S. C.) | 110 | 115 |
| Warren Mfg. Co. (S. C.) | 90 | 95 |
| Warren Mfg. Co. (S. C.) Pfd. | 100 | 105 |
| Washington Mills (Va.) | 23 | ... |
| Washington Mills - Va. Pfd. | 106 | 110 |
| Whitney Mfg. Co. (S. C.) | 110 | 110 |
| Wiscasset Mills (N. C.) | 135 | ... |
| Woodruff Cotton Mills (S. C.) | 95 | 100 |
| Woodside Cotton Mills (S. C.) | 100 | ... |
| Watts Mills (S. C.) | 70 | 85 |
| Williamston Mills (S. C.) | 110 | 125 |

FINANCIAL CORPORATIONS.

Ala., Birmingham.—The Southern Mortgage & Realty Co., capital \$66,000, is reported organized; incorporators, James Burgin, president; George B. Tarrant, treasurer; J. N. Merrell, vice-president; Ellis P. Brown, secretary; L. W. Brown of Gadsden, W. K. McAdory and R. H. Wharton.

Ala., Birmingham.—Official: The Universal Mortgage-Bond Co., First National Bank Bldg., incorporated. Authorized capital stock, \$250,000. Directors: John G. Cooke, president; W. B. Major, secretary; D. E. Manasco and E. P. Rosamond. Business began January 1.

Ala., Birmingham.—Official: The Southern Bond & Securities Co., capital \$300,000, which is soon to be increased, is incorporated by J. M. Dewberry, Forney Johnston and R. D. Johnston, Jr.; headquarters, Brown-Marx Bldg.

Ala., Birmingham.—The Securities Company of America, capital \$50,000, is reported incorporated by A. D. Smith, president; J. D. Smith and George W. Beach, vice-presidents; S. J. Ansley, secretary and treasurer; C. B. Cain, N. O. Tyler and H. H. Whitman.

Ala., Birmingham.—The Union Security Co., capital \$200,000, is reported organized with C. E. Tandy, president; E. P. Little, secretary, and J. O. Partain, treasurer.

Ala., Comer.—A new bank is reported being organized with \$15,000 capital by J. L. Houston, J. A. Grant and others.

Ala., Lincoln.—Official: The First National Bank, which succeeds the First State Bank, is chartered with \$25,000 capital; organizers, G. L. Schmidt, R. B. Burns, T. J. Watson, L. W. Dickerson, W. D. Henderson, all of Lincoln; McLane Tilton and T. H. Rennie of

Pell city, and J. Fall Roberson of Cropwell, Ala., Montgomery.—Reported chartered: The Montgomery Savings Bank; capital \$40,000; incorporators, Charles L. Harold, president; Ralph D. Quisenberry, vice-president; L. W. Martin, secretary. The board of directors are Charles L. Harold, Ralph D. Quisenberry, H. F. Martin, A. C. Davis and L. W. Martin.

Ark., Calico Rock.—The People's Bank of Calico Rock is reported to have filed articles of incorporation; capital \$12,000. Incorporators: S. E. McNeill, S. L. Guthrie, Seth Matthews, E. V. Arnold and R. H. Wayland.

Ark., England.—The Citizens' Bank has elected officers thus: President, J. E. Hicks; vice-president, H. Galloway; cashier, J. R. England.

Ark., Fayetteville.—The First Savings Bank of Fayetteville, capital \$50,000, is reported chartered with E. T. Ellis, president; S. P. Earle, vice-president, and Bruce Holcomb, secretary and treasurer.

Ark., Fisher.—Reported chartered: Bank of Fisher; capital \$10,000; J. A. Sanders, president; G. R. Plyler, vice-president, and L. E. Wade, secretary.

Ark., Warren.—The First National Bank, capital \$50,000, is reported being organized by Carl Hollis of Warren, O. O. Axley, H. L. Turner, William J. Savage and F. L. Purcell.

D. C., Washington.—According to press dispatches, the Washington and Southern Bank is to be organized with J. Selwin Talt as president.

Fla., Jacksonville.—Reported chartered: The Heard National Bank of Jacksonville; capital \$1,000,000; J. J. Heard, president; W. B. Sadler and J. G. Boyd, vice-presidents, and C. W. Hendley, cashier.

Fla., Jacksonville.—The St. Johns Insurance Co., capital \$100,000, is reported being organized with E. A. Groover, president; Clayton Groover, vice-president; Ugo E. Guerrini, secretary; J. P. Hoffman, treasurer, and E. A. Groover, Clayton Groover, Ugo E. Guerrini and J. P. Hoffman, directors.

Ga., Atlanta.—The Purchase Money Note Co. is reported incorporated with \$5000 capital by C. D. Gibbs and R. W. Sutton for the purpose of buying and selling money notes of real and personal property.

Ga., Ashburn.—Official: The Turner County Bank is organized with \$25,000 capital and \$5000 surplus; directors, J. S. Shingler, president; J. L. Evans, vice-president; M. S. Carter, W. J. Turner and G. C. McKendle; cashier not yet elected. The bank will be located on the corner of College Ave. and Gordon St.

Ga., Dublin.—Press dispatches state that plans are being made to organize a loan and investment company to be capitalized at \$50,000.

Ga., Flovilla.—A loan and trust company capitalized at \$15,000 is reported being organized by O. M. Duke, F. L. Lawson and John E. Pye. Business is expected to begin not later than May 1.

Ga., Macon.—Official: A new national bank is being organized by Robert G. Jordan, Jesse B. Hart and Richard F. Lawton. The bank will have \$100,000 capital and offices will be in the Georgia Life Bldg. Business is expected to begin in August.

Ga., Macon.—The Central Trust Co., capital \$250,000, is reported to have begun business. Officers: J. J. Cobb, president; W. E. Small, Leon S. Dure and Will Grun, vice-presidents; E. P. Mallory, trust officer; G. S. Derry, secretary; J. M. Massey, treasurer. Directors: W. T. Anderson, J. J. Cobb, Leon S. Dure, Will Grun, Park Harper, Jesse H. Hall, E. H. Holland, H. F. Haley, E. N. Lewis, F. L. Mallory, T. C. Parker, C. H. Peacock, W. E. Small, L. A. Shepherd.

Ga., Rex.—Reported chartered: The Bank of Rex; capital \$25,000. Incorporators: J. M. Eates, W. O. Adams, C. L. Powell and others.

Ga., Scotland.—The Bank of Scotland is reported to have made application for a charter; capital \$25,000. Incorporators: E. H. Herman, Eschel Graham, J. W. Neal, J. A. Clegg, J. T. Elder and R. I. Kitchen.

Ga., Ellenwood.—The Bank of Ellenwood is reported to have made application for a charter; capital \$25,000; incorpor

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 DEPOSITS DEC. 31, 1910 8,809,843.00
 DEPOSITS DEC. 31, 1911 10,344,570.57

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Valley Banking & Trust Co., capital \$1,000,000, is being organized by ex-Governor N. C. Blanchard, Dr. John P. Scott, J. Homer Jordan of Shreveport and Capt. W. V. Hobson of Caddo. Press dispatches state that business is expected to begin about May 1.

Md., Baltimore.—The Mutual Loan Co. has begun business at 10 South St.; capital \$300,000, of which \$100,000 has been subscribed; president, Clarendon I. T. Gould; first vice-president, George C. Morrison; second vice-president, James S. Whedbee; secretary-treasurer, John C. Wroe; directors, Henry F. Baker, George C. Morrison, William H. Matthal, Fred A. Doldfield, Hooper Coyne, J. J. Kelly, Jr., Solomon Frank, C. I. T. Gould, John C. Wroe, James S. Whedbee, Bruce Cotten, Stuart Olivier, C. Wilbur Miller, Aubrey Pearre, Jr., and Redmond C. Stewart.

Md., Baltimore.—The Gilmor-Pratt Building and Savings Association incorporated; capital \$300,000; incorporators, Edward E. Johnston, Spencer M. Clark and F. Wm. Ortmann.

Md., Centerville.—The Baltimore Casualty & Guaranty Co. is being organized at Centerville; capital \$500,000. Those interested are J. Barry Mahool, Frank N. Hoen, John G. Brogden, Louis H. Fehsenfeld, Charles H. Knapp, W. M. McCormick, William H. Fehsenfeld, Robert S. Maslin, C. M. Anderson, Edward Watters, H. M. Thompson, all of Baltimore, and a number of out-of-town men. Business is expected to begin about May 1. Legislative permission is to be obtained to have the home office in Baltimore.

Md., Rising Sun.—Reported that the Farmers' Trust & Banking Co. of Rising Sun has filed articles of incorporation. Incorporators: J. Wayne Reynolds, C. Ross Biles, Jesse T. Cameron, J. T. Grove, H. H. Mackey, W. T. B. R. Roberson, S. J. Reynolds, W. R. Cameron, R. T. Cameron, J. H. Maxwell, J. M. Holden, Cecil Kirk, J. B. Fassitt and Wm. M. Pogue.

Miss., Juka.—Press dispatches state that a new national bank is being organized by W. W. Harris, J. C. Jourdan, C. B. Massey, A. L. Jagoe and L. T. Gaines. Capital is to be \$25,000.

Miss., Waynesboro.—The People's Bank is reported organized with directors thus: C. P. Wetherbee of Meridian, president; B. Arlington, vice-president; J. A. Legett, cashier; J. T. Pinkerton, W. S. Gand, J. T. Halstrom and B. Arlington, all of Waynesboro, and W. H. Oliver of Chicago.

N. C., Charlotte.—The Stonewall Fire Insurance Co., capital \$100,000 and surplus \$100,000, is reported to have completed its organization; incorporators, George Stephens, Word H. Wood, P. C. Whitlock, Harvey Lambeth and A. P. Felts.

N. C., Charlotte.—The Stonewall Fire Insurance Co. of Charlotte is reported being organized with \$100,000 capital. Incorporators, George Stephens, Word H. Wood, P. C. Whitlock, Harvey Lambeth and A. P. Felts.

N. C., Wilmington.—The Hanover Trust Co., capital \$25,000, is reported to have begun business; capital \$25,000; directors, Thomas E. Cooper, president; Herbert McClammy, Esq., vice-president and attorney; W. H. Smith, secretary, and H. McClammy, Geo. O. Gaylord, W. B. Cooper, W. H. Smith and Thos. E. Cooper.

Okla., Okemah.—The Okemah Title & Abstract Co., capital \$5000, is reported chartered. Incorporators, Frank Phillips, L. E. Phillips, Bartlesville; Ed E. Phillips, A. B. Phillips, Okmulgee.

Okla., Oklahoma City.—The Lincoln Mortgage & Loan Co., capital \$25,000, is reported incorporated by George G. Sahlberg, C. E. Johnson and T. W. Williamson.

Okla., Scipio.—Official: The Scipio State Bank is reported chartered; capital \$1000; W. P. Freeman, president, McAlester, Okla.; Travis Myers, vice-president, and T. D. Thomas, cashier, both of Scipio, and R. L. Nesmith and R. P. Brewer of McAlester, directors. Business is to begin about February 1.

S. C., Blacksburg.—The Home Insurance & Realty Co. is reported to have been granted a commission; capital \$2000. Petitioners, J. F. Kitchen, M. H. Morrow and Charles Baber.

S. C., Mountville.—Reported chartered: The Bank of Mountville; capital \$25,000. Officers: J. N. Bryson, president; A. P. Fuller, vice-president; M. B. Crisp, vice-president, and C. M. Fuller, cashier.

Tenn., Decherd.—The Citizens' Bank & Trust Co., capital \$30,000, is reported incorporated by D. M. Powell, J. L. Haynes, C. E. Murray and C. O. Ellis.

Tenn., Greeneville.—Reported chartered: The Farmers and Traders' Bank; capital \$15,000; incorporators, Dana Harmon, W. W. Harmon, James L. Swinger, W. H. Doughly, S. W. Stephens.

Tenn., Memphis.—The Tennessee Brokerage Co. is reported to have made application for a charter; capital \$10,000. Incorporators: M. J. Lynam, W. E. Remshart, L. N. Nolen, H. S. Nolen and H. M. Magevney.

Tenn., Nashville.—Official: The Title Guaranty & Trust Co. chartered; capital \$200,000; incorporators, Johnson Bramford, Jos. H. Thompson, A. D. Maddin, Robt. Lusk, V. I. Witherspoon, W. R. Cole, Walter Keith, A. M. Carroll, E. A. Halle, J. H. Howe, A. H. Robinson and P. D. Houston. Business is to begin about March 1.

Tenn., Sharon.—The Farmers and Merchants' Bank is being organized with \$80,000 capital by W. P. Allen, D. J. Nowlin and H. B. Stephens, all of Sharon. Business has begun. Temporary quarters, Adams and Hogan Sts.

Tenn., Spring City.—The Citizens' State Bank is reported incorporated; capital \$25,000; incorporators, W. C. Anderson, B. L. Saddler, T. H. Enright, W. L. Snyder and R. C. M. Cunningham.

Tex., Bay City.—The Citizens' Trust Co. is reported organized with \$50,000 capital. Directors: J. M. Moore, president; Fred S. Robbins, first vice-president; Judge Thompson, second vice-president; M. Thompson, secretary-treasurer; V. L. Le Tulle, D. C. Moore and A. H. Wadsworth.

Tex., Kopperl.—The Guaranty State Bank of Kopperl, capital \$10,000, is reported organized. Officers: W. P. Greer, president; J. H. Burnett, first vice-president; T. C. Day, second vice-president, and C. A. Summerlin, cashier; directors, P. H. Whitworth, W. P. Greer, Dave Alsop, T. C. Day, A. J. Reek, D. J. H. Burnett and C. A. Summerlin. This is to succeed the First State Bank of Kopperl.

Tex., Lindale.—The Citizens' Bank of Lindale, capital \$30,000, is reported chartered; incorporators, J. A. Fleming, W. R. Marg. C. E. Hall and others.

Tex., Longview.—The Guaranty State Bank, capital \$25,000, is reported chartered; incorporators, A. A. Batson, G. A. Bodenheim, D. W. Gans and others.

Tex., Paris.—Reported chartered: The Gibraltar Life Insurance Co., capital \$100,000. Incorporators: A. A. Leseur, Jr., R. J. Murphy, W. R. Wood, W. A. Bells and J. S. Patrick of Paris.

Va., Alexandria.—Reported chartered: Norman & Robinson, Inc., capital \$1000 to \$15,000. Directors: S. R. Norman, president; N. R. Robinson, secretary and treasurer, and George H. Smith. The company proposes to do an insurance business in Virginia.

Va., Kinsale.—Official: The Northern Neck National Bank of Kinsale is to be chartered with \$25,000 capital. Officers not yet elected. V. B. Hardwick is among those interested.

W. Va., Wellsburg.—The Farmers' State Bank of Wellsburg is reported being organized with \$100,000 capital. Business is expected to begin about March 1. The promoters include Jesse E. Curtis, C. B. Reeves and S. S. Hedges.

NEW SECURITIES.

Ala., Linden.—Official: Defeated: Marengo county bond issue.

Ala., Montgomery.—R. M. Grant & Company of New York city are reported to have purchased \$60,000 of 5 per cent. 10-30-year paying bonds at \$762 premium.

Ala., Jasper.—March 12, it is reported, an election is to be held in Walker county to vote on \$300,000 of good-roads bonds.

Ark., Osceola.—Official: Bids will be received until February 14 for about \$1,250,000 of 6 per cent. 5-30-year bonds of Drainage District No. 9, Mississippi county. Address Commissioners of said district.

Ark., Pine Bluff.—Reported that J. D. Goldman of St. Louis has purchased \$30,500 drainage bonds of Jefferson county.

Fla., Calhoun.—Press dispatches state that an election is soon to be held to vote on \$15,000 of sewer system bonds.

Fla., Lakeland.—Official: Bids will be received by the Board of Bond Trustees, C. C. Memminger, chairman, until April 15 for \$150,000 of 5 per cent. 30-40-year sewerage, street-paving and public building bonds; dated March 1, 1922.

Ga., Bainbridge.—Official: Robinson-Humphrey-Wardlaw Company has purchased \$100,000 of school, street, water and city hall bonds at 103½; they to stand all expense incident to the printing of bonds. These are the improvement bonds that have been advertised for sale on March 4. W. O. Fleming is City Clerk.

Ga., Marietta.—Press dispatches state that it is proposed to hold an election to vote on \$30,000 of school bonds.

Ga., Meigs.—Official: An election will be held February 27 to vote on \$15,000 of water and \$5000 of light 5 per cent. bonds; denomination \$1000; dated July 1, 1912; maturity 1924, \$2000 annually to 1934. It is expected to ask bids about April 1. E. E. Wilkes is Mayor.

Ga., Swainsboro.—February 12, it is reported, an election is to be held to vote on \$7500 of electric-light bonds.

Ga., Thomasville.—According to press dispatches, an election may soon be held to vote on school and improvement bonds.

La., Baton Rouge.—Hayden, Miller & Co., Cincinnati, are reported to have purchased at \$225 premium \$75,000 of 5 per cent. 10-year school bonds.

Ga., Sylvester.—Bids will be opened February 12, it is reported, for \$9000 of sewer, \$6000 of water and light and \$5000 of school 5 per cent. 30-year bonds. Address City Clerk.

Ky., Louisville.—Press dispatches state that the remaining \$500,000 of City Hospital bonds will be offered for sale by the Hospital Commission March 14. The offices of the Commission are in the Columbia Bldg.

Ky., Louisville.—Press dispatches state that bids will be received until noon March 14 by the Hospital Commission for \$500,000 of hospital bonds.

Ky., Pineville.—The \$30,000 of high-school bonds voted last November are reported sold.

Md., Annapolis.—The \$1,000,000 of 3½ per cent. 10-15-year, Series E, State good roads bonds, have been awarded as follows: H. A. Orrick, \$50,000; William A. Dunnington, \$10,000; Colston, Boyce & Company, \$40,000; Townsend Scott & Sons, \$145,000; Baker, Watts & Company and Nelson Cook & Company, jointly, \$500,000; Hambleton & Company, \$80,000; Alexander Brown & Sons, \$50,000; Harris Forbes & Company, \$25,000. Prices ranged from 94 to 96.

Md., Baltimore.—City is asking authority for a \$2,000,000 loan to extend the subway system.

Miss., Longview.—Reported that the \$20,000 of bonds authorized for constructing and equipping the Oktibbeha County Agricultural College will soon be sold.

Miss., Meridian.—February 27 an election is to be held to vote on \$50,000 of 5 per cent. 30-year railroad-bond issue.

Miss., Waynesboro.—Press dispatches state that no election was held January 30 to vote on \$17,000 of schoolhouse bonds, and that another election will be ordered.

Miss., Valden.—Official: Bids will be received until February 19 for \$20,000 of 6 per cent. 5-20-year bonds of Hays Creek Swamp-land Drainage District; denomination \$500; dated February 19, 1912. Address James Somerville, L. W. Herring, Sr., and L. S. Hemphill, Drainage Commissioners of Carroll county.

Mo., Lamar.—Official: Sutherland & Company, Kansas City, Mo., purchased at par, accrued interest and premium of \$1081 the \$70,000 of 5 per cent. 1-20-year bonds for building or purchasing combined water and light plant; denomination \$1000; dated March 1, 1912. Bonds were voted October 24, 1911.

N. C., Gastonia.—An official letter confirms report that it is proposed to issue \$70,000 of improvement bonds. Election voting same has not been held, and amount to be expended for the different purposes has not been officially decided. Thomas L. Craig is Mayor and John R. Rankin clerk.

N. C., Hamlet.—Cutter, May & Co., Chicago, are reported to have recently purchased \$5000 of street-improvement bonds.

N. C., Hendersonville.—Official: C. A. Webb, Asheville, N. C., purchased at private sale at par, plus all cost of printing bonds, etc., the \$22,000 of 6 per cent. street-improvement bonds; denomination \$1000; dated February 1, 1912; maturity one bond in five years and one each year thereafter. Bonds were voted January 16, 1912. R. H. Staton is Mayor.

N. C., Hot Springs.—Dispatches state that

OFFICE OF THE NORTHERN CENTRAL RAILWAY COMPANY.

BALTIMORE, MD., 8th February, 1912.

The Annual Meeting of the Stockholders of this Company will be held at 12 o'clock M., on Friday, the 23rd day of February, 1912, at the General Office, southeast corner of Calvert and Centre Streets, Baltimore, when the Annual Report of the President and Board of Directors for 1911 will be presented, an election held for twelve Directors to serve for the ensuing year, and such other business transacted as may properly come before the meeting.

LEWIS NEILSON,
Secretary.



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an election is to be held to vote on \$40,000 of highway bonds.

N. C., Kernersville.—Official: An election is to be held in March to vote on electric plant bonds. W. C. Stafford is Mayor.

N. C., Oxford.—An official letter says: "No election or issuance of bonds." This would deny report that \$30,000 of sewerage bonds had been voted.

N. C., LaGrange.—March 4, it is reported, an election is to be held to vote on \$30,000 of sewerage, water-works, electric-light, street improvement, town hall and market-house bonds.

N. C., Nashville.—The Planters' Bank of Rocky Mount, N. C., is reported negotiating for the purchase of \$55,000 of Nash county township road bonds.

N. C., Selma.—Reported voted: \$25,000 of 6 per cent. 30-year light, water and improvement bonds.

N. C., Stateville.—Official: Bids will be opened February 7 for \$10,000 of 5 per cent. 20-year refunding graded school bonds; denomination \$500; dated February 15, 1912; maturity February 15, 1932. Address C. D. Moore, clerk and treasurer.

N. C., Selma.—Official: Voted: \$25,000 of 6 per cent. 30-year electric-light, water-works and other improvement bonds. Date of opening bids not yet decided. John A. Mitchener is Mayor.

N. C., Weldon.—Official: Bids will be received until noon February 26 for \$40,000 of 6 per cent. 10-20-year water-works bonds. Address W. W. Wiggins, Mayor.

Okla., Eufaula.—Official: W. A. Brooks of Oklahoma City purchased at par the \$14,470 of 6 per cent. McIntosh county bonds for funding deficiency claims; denomination \$100, except No. 14, which is \$470; maturity December 1, 1935. E. F. Saltsman is chairman commission and J. Owen Price, County Clerk.

Okla., Oklahoma City.—Press dispatches state that the election to vote on \$250,000 of park and \$100,000 of water-works bonds is to be held February 12. W. M. Grant is Mayor.

Okla., Olustee.—The \$30,000 of water-works bonds are reported sold.

S. C., Columbia.—A bill is reported to have been prepared providing for the issuing of \$1,000,000 of bonds to develop old State Hospital for the Insane.

S. C., Yorkville.—According to press dispatches, it is proposed to sell water and light bonds recently voted.

S. C., Yorkville.—Reported that an election is to be held in York county to vote on \$75,000 of courthouse bonds.

Tenn., Bluff City.—Official: Bids will be received until 4 P. M. March 11 for \$100,000 of the \$200,000 of 4½ per cent. 20-30-year road bonds authorized by the County Court January 1, 1912; denomination \$1000; dated February 1, 1912. Address W. D. Lyon, chairman Sullivan County Pike Commission.

Tenn., Decatur.—Reported defeated: \$125,000 of Meigs county road bonds.

Tenn., Jonesboro.—M. R. Carson and H. H. Houghton are reported to have been appointed to arrange for the sale of \$40,000 of high-school bonds.

Tenn., Lawrenceburg.—March 16, it is reported, an election is to be held in Lawrence county to vote on \$300,000 of road bonds.

Tenn., Livingston.—February 28 an election is to be held in Overton county to vote on \$150,000 of 5 per cent. 30-year pike bonds. J. R. Hogue is County Judge.

Tenn., Memphis.—Bids will be received until noon February 22 by J. P. Young, chairman, for \$100,000 of 4½ per cent. 25-year bonds issued by Shelby county in aid of State Normal School for West Tennessee; denomination \$1000.

Tenn., Memphis.—Bids will be received until noon February 22 for \$100,000 of 4½ per cent. 25-year Shelby county normal school bonds; denomination \$1000. Address J. P. Young, chairman of the committee. R. L. Bartels is attorney, Memphis Trust Bldg.

Tenn., Sparta.—Official: Voted: \$90,000 of 4½ per cent. White county pike bonds. Address County Clerk.

Tex., Austin.—Press dispatches say that it is proposed to hold an election to vote on \$150,000 of school bonds.

Tex., Austin.—The Attorney-General is reported to have approved the following securities: \$9000 of 5 per cent. 30-40-year Claiborne (Kath county) independent school district bonds; \$1500 of 5 per cent. 10-20-year Bastrop county common school district No. 26 bonds; \$700 of 5 per cent. 10-20-year Hopkins county common school district No. 11 bonds.

Tex., Cleburne.—February 23, it is reported, an election is to be held in Precinct No. 1, Johnson county, to vote on \$300,000 of road-improvement bonds.

\$100,000

Seven Per Cent. Cumulative Preferred Stock

OF

The Unit Weighing and Packing System

(INCORPORATED)

Dividends payable July 1st and January 1st.

Redeemable, at the option of the Corporation, at 105 and accrued dividends on sixty days' previous notice.

Remittances covering subscriptions are to be made payable only to "THE CONTINENTAL TRUST COMPANY," Baltimore.

The corporation has been organized to manufacture and sell machines that will automatically and accurately weigh, pack and cap (or seal) any kind of powdered or granular substances, such as Baking Powder, Mustard, Tea, Coffee, Borax, Blueing, Soap Powder, Rice, Chocolate, Grits, Meal, Cocoa, Spices, Sugar, Bird Seed, Tooth Powder, Vegetable Seed, Talcum Powder, Corn Products, Salt, Starch, Dry Paints, Soda and cereals of all kinds.

The machine is not experimental, but has been continuously used for a number of years by prominent baking powder manufacturers, from whom we have letters evincing their satisfaction, which will be gladly shown to anyone interested.

It is proposed to lease the machines on a basis of a sufficient installation charge to cover cost of manufacture and yield a reasonable profit and a monthly rental for at least three years, the corporation always to own the machines. A careful inquiry indicates \$100 as the proper monthly royalty on each machine.

A very conservative estimate of the number of machines that should be installed in the United States alone is 1000.

The corporation is organized under the supervision of Messrs. Bopd, Robinson & Duffy, of Baltimore, who will act as legal advisers, and whose opinion as to its legal organization and the valid use of its stock will be shown at request.

The various patents covering the machines and the corporation's patent affairs will be in charge of Mr. James L. Norris, Jr., of Washington, D. C. His opinion as to the proper issue and validity of the patents will also be shown to anyone interested.

LEWIS M. KEIZER, President.

JOHN H. WINDFELDER, Vice-President.

EDWARD P. HILL, Secretary and Treasurer.

The right is reserved to reject any subscription and to allot a smaller amount than applied for.

Temporary receipts will be given by the Continental Trust Company, pending delivery of Definite Certificates.

For subscription forms and further detailed information, apply to the undersigned.

The Unit Weighing and Packing System

(INCORPORATED)

CONTINENTAL BUILDING, BALTIMORE

Tex., Dallas.—W. N. Coler & Co., New York, is reported to have purchased the remaining \$20,000 of the \$500,000 Dallas county road and bridge bonds.

Tex., Forney.—The City National Bank of Forney is reported to have purchased \$12,000 of sewer bonds.

Tex., Fort Worth.—Notice is given that bids will be received until 11 A. M. March 11 for \$1,600,000 of 5 per cent. Tarrant county road and bridge bonds; denomination \$1000. Address C. J. McKenna, Fort Worth.

Tex., Groesbeck.—February 17, it is reported, an election is to be held in Limestone county to vote on \$20,000 of bonds of road district No. 5.

Tex., McKinney.—February 10, it is reported, an election is to be held in Collin county to vote on \$120,000 of good-roads bonds.

Tex., Mercedes.—According to press dispatches, \$175,000 of drainage bonds have been voted and part of them sold.

Tex., Nocona.—Reported voted: \$17,500 of 5 per cent. 30-40-year water-works bonds.

Tex., Pecos.—H. N. McKellar, Clerk, writes: "No new bond issue for this (Reeves) county."

Tex., Raymondville.—Bids will be received by the Board of Directors of Union Irrigation District until 2:30 P. M. March 5 for \$100,000 of bonds. A. T. Woodhouse is president and Frank A. Miller, secretary.

Tex., Sherman.—Official: The \$400,000 of

5 per cent. 10-40-year bonds of road district No. 2, Grayson county, will probably be ordered issued at February term of court and will be dated March 1, 1912. W. R. Wallace is County Auditor.

Tex., Tyler.—Official: Bids will be opened April 1 for \$8000 of 5 per cent. 40-year bonds voted December 1, 1911, for building and equipping schoolhouse, Flint District No. 15; denomination \$100. Address Jesse F. Odom.

Va., Boydton.—Reported that Well, Roth & Company, Cincinnati, have been awarded at \$101.25 the \$240,000 of 5 per cent. Mecklenburg county road-improvement bonds. H. F. Hutcheson is chairman Board of Supervisors.

Va., Boydton.—Official: Well, Roth & Co., Cincinnati, purchased on January 29, at \$242,950, the \$240,000 of 5 per cent. 1-30-year Mecklenburg county road-building bonds; dated March 1, 1912; maturity, 1912 to 1942. Address Board of Supervisors. H. F. Hutcheson is Clerk.

Va., Colonial Beach.—Official: Farson, Son & Co. were the successful bidders for the \$30,000 of sewerage and \$17,000 of water-works 6 per cent. 25-year bonds, but owing to a clause in the Council proceedings that might possibly invalidate the bonds, a new election is to be held March 14 to confirm the issue. H. W. B. Williams is Mayor.

Va., Norfolk.—Steps are reported being taken to issue \$94,000 of sewer and \$120,000 of street-improvement bonds for Tenth Ward.

Va., Radford.—Reported that the \$35,000 of school-debt bonds have been validated by the Senate.

W. Va., Barboursville.—Koehler & Cummings of Toledo, O., are reported to have purchased \$11,500 of bonds at \$150 premium.

W. Va., Bethany.—February 15, it is reported, an election is to be held to vote on \$4000 of street-improvement bonds.

W. Va., Fairmont.—Official: Voted January 27, 1912: \$140,000 of 5 per cent. 30-year independent school district bonds; denomination \$100 or multiple thereof; dated June 1, 1912. Date of opening bids not yet decided. Address Board of Education.

W. Va., Gary.—Bids will be received until 2 P. M. March 1 for \$40,000 of 5 per cent. 20-34-year Adkins district school bonds; denomination \$1000; dated March 1, 1912. Address C. G. Seaton, secretary Board of Education.

W. Va., Gassaway.—Claude L. Heater, Town Recorder, will, it is reported, receive bids until noon March 12 for \$15,000 of 6 per cent. 10-20-year bridge bonds; denomination \$500; dated March 1, 1912; maturity March 1, 1932.

W. Va., Princeton.—Reported defeated: \$20,000 of city hall bonds.

At Lakeland, Fla., bids will be received until April 15 for \$150,000 of 5 per cent. 30-44-year sewerage, street paving and public building bonds. Further particulars will be found in the advertising columns.

At Weldon, N. C., bids will be received until noon February 26 for \$40,000 of 6 per cent. 10-20-year water-works and sewerage bonds. Further particulars will be found in the advertising columns.

The South's Growth in 30 Years

The Story of the South's progress in the past three decades is a business story of impelling interest. The victories won in the arts of peace, the emergence from poverty and almost destitution into a dominating position in the commerce of the world is a *vital* story.

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This story will be told in our issue of February 22nd, as Part II, under the title

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In conjunction with Part I (our regular edition for that date) this number will probably be the largest edition of a weekly newspaper ever printed in this country, or ever printed in behalf of any section of the world.

Every phase of the South's growth in every line of industry and development will be covered fully.

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MANUFACTURERS RECORD, BALTIMORE

Tarvia

*Preserves Roads
Prevents Dust~*



Hennepin Avenue, Dixon, Ill. Constructed with Tarvia X.

Dixon's Experience with Tarvia

THE City of Dixon, Ill., is one of the countless towns which have discovered the economy of building macadam roads with Tarvia. The result is a clean, firm, durable and dustless road which wears so much better than plain macadam that the extra cost of the Tarvia treatment is more than paid for.

The effectiveness of Tarvia in Dixon is testified to in the two following letters:

Dixon, Ill., Feb. 9, 1911.

Gentlemen:—

We used several blocks of Tarvia-bouud Macadam last fall and I believe it has and will prove satisfactory for what we want. We have large amounts of fine rock easily accessible at a nominal price, and have had trouble in holding it as plain macadam on our hills, but Tarvia binder holds right where we want it.

Personally, I am a great believer in Tarvia as an answer to the demand here in Dixon for a cheap permanent pavement.

Yours truly,

(Signed) R. C. BOVEY.

Chairman, Street Commission.

Dear Sir:—

Will say that the tarviated street we laid here last summer seems to me to meet the requirements finely. The water runs off as "from a duck's back." For residence streets and particularly for hilly sections it is almost ideal. It is cheap as compared with brick and horses do not slip on it as they do on many streets. Then I think you are just about rid of the dust.

(Signed) L. B. NEIGHBOUR, City Engineer.

Dixon, Ill., April 10, 1911.

Tarvia is a dense, viscid tar product especially devised for use as a binder on macadam roads. It fills the voids in the macadam and encloses the stone in a tough, plastic matrix which prevents shifting of the stone under the weight of traffic, cushions internal movement, holds the surface stones to their work, prevents ravelling, erosion and pulverization by automobiles.

See Our Exhibit at Chicago Cement Show, Space No. 110.

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Classified Opportunities

MEN WANTED

HIGH-GRADE SALESMEN having acquaintance among large manufacturers will bear of side line paying liberal commission; no samples required. Address "Allen," Box 663, Cincinnati, Ohio.

WANTED—Traveling or local men; all sections of the country; profitable side line; commission or salary; good men average \$100 weekly. For particulars address The Sun Chemical Company, Richmond, Va.

GOOD LINE WITH LESS COMPETITION. Selling standard medical books to physicians is profitable and agreeable work. It develops a high grade of salesmanship. Address Dept. R, F. A. Davis Co., 1914 Cherry St., Phila., Pa.

WANTED—Foundry foreman for well-located foundry in Tennessee, now operating on jobbing and specialties; one who can furnish part of working capital and take full charge. Address by mail only, D. S. Benedict, 1206 LaSalle Ave., Chicago, Illinois.

WANTED—We want an office manager who can furnish A-1 references and has \$1000 in cash to invest. Georgia Loan & Inv. Co., Tifton, Ga.

WANTED—A man possessed of some real business instinct, nothing extraordinary, one who is familiar with foundry and machine-shop practice, or one who is familiar with some special line of manufacture which could be produced by a first-class foundry and machine shop now running. Address L. C. Turley, Portsmouth, Ohio.

WANTED—Pumping machinery salesman, a thoroughly competent man, to travel principally in Southern territory. Responses will be considered in confidence if desired. Address, with full information, The John H. McGowan Co., Cincinnati, Ohio.

WANTED—Party to invest \$30,000 in company to mine high-grade iron ore; output of mine can be contracted at price to insure most satisfactory profit; practical mine manager preferred, or young man to fill position of secretary and treasurer and learn to manage. Principal and interest guaranteed and secured by mortgage on property worth more than \$100,000. Address O. F. James, Hamilton Bank Building, Chattanooga, Tenn.

FOUR experienced town lot salesmen to sell 100 lots in subdivision to Muskogee, Okla., to colored people in Arkansas and Mississippi; photograph of property furnished; 15% commission. If inexperienced, don't answer. Joseph Cromwell, Muskogee, Okla.

SALESMEN—Good opportunity for experienced, energetic man to sell special belt treatments and belting on commission. Our line is simple and something new. References from former employers must accompany application. F. Ransville Company, Grand Rapids, Mich.

HIGH-GRADE SALES MANAGERS WANTED in districts throughout the United States to sell Old Wilson Ranch Land, 18,700 acres, 40 acres and up, Bee county, Texas; in the rain belt; in the citrus-fruit belt. To live parties who can produce good business will make very attractive proposition, including salary. None but parties in touch with farmers and with good references need apply. Write for full details. Theodore Plummer, Owner, No. 540 Moore Bldg., San Antonio, Texas.

AGENCIES WANTED

AGENCY WANTED for New York city and vicinity. Exclusive connection sought by man 45 years of age, possessing personality and force of character; a good judge of man; one having broad and successful selling and manufacturing experience, technical knowledge and wide acquaintance among right sort of people; no cheap proposition considered; correspondence solicited from manufacturers desiring to secure suitable representation in this market under exceptionally favorable conditions. Address No. 935, care Manufacturers Record.

SITUATIONS WANTED

SITUATION WANTED by Cornell graduate having nine years' experience in manufacturing and jobbing business; want position with established company where there is chance of advancement if ability is shown; am willing to start at moderate salary. Address No. 924, care Manufacturers Record.

A TECHNICAL GRADUATE with 6 years' experience in the design, installation and operation of steam boilers, high-speed and Corliss engines and sawmill machinery, wishes a position as mechanical engineer or assistant manager with a manufacturing concern; now employed; first-class references furnished. Address No. 933, care Manufacturers Record.

SITUATION WANTED by competent bookkeeper and factory accountant with manufacturers or public-service corporation has experience in shop management, cost accounting and estimating; capable of installing efficient system of factory accounting; future, not salary, main consideration; best of references. Address No. 905, care Manufacturers Record.

Rate 20 cents per line per insertion. Minimum space accepted, four lines. Maximum space accepted, 24 lines. Allow seven words per line. Terms: Invariably cash with order; check, postoffice or express order or stamps accepted. No display type used. Questionable or undesirable advertisements will not be accepted. The assistance of our readers in excluding undesirable advertisements is requested. We reserve the right to refuse any advertisement. No patent medicine, whiskey or mining stock advertisements accepted. Rate for special contracts covering space used as desired within one year, as follows: 100 lines, 18c. per line; 300 lines 16c. per line; 500 lines or more, 15c. per line.

EDUCATIONAL

RENSSELAER POLYTECHNIC INSTITUTE, TROY, N. Y.—Courses in Civil, Mechanical and Electrical Engineering, and General Science, leading to the degrees of Civil Engineer (C.E.), Mechanical Engineer (M.E.), Electrical Engineer (E.E.), and Bachelor of Science (B.S.). Special courses in engineering and science. Splendidly equipped new engineering laboratories. Send for catalogues to Registrar.

BANKS

THE PALMETTO NATIONAL BANK, Columbia, S. C. capital \$250,000, solicits accounts of banks, firms, corporations and individuals, either commercial or savings accounts.

FLORIDA HOTELS

THE WINDSOR HOTEL, Jacksonville's finest and Florida's largest and best year-round hotel. Rates reasonable. American and European plan. Operating the finest European grillroom in the South. Thomas M. Wilson, proprietor.

BUSINESS OPPORTUNITIES

COMPANY FORMING to market 23,000 acres, well adapted to citrus fruits and truck growing; good transportation; many beautiful lakes; want five associates to assist in locating. Box 367, Sanford, Florida.

SPLENDID OPPORTUNITY for good business man with about \$500 to acquire full control of a well-established electrical contracting and supply business, free from debts in city of 175,000. Address at once, M. C. & Pomeroy, Atlanta Natl. Bank Bldg., Atlanta, Ga.

WANTED—Man or men with practical experience to establish woodworking plant to manufacture novelties. To such men will give assistance. Plenty of cheap timber, good transportation facilities and natural gas for fuel. Address Secretary, Box 67, Poteau, Oklahoma.

WE ARE TWO HUSTLERS, one at the present time general superintendent, the other chief engineer of a well-known pump manufacturer. We want to manufacture pumps and engines, mill and mining machinery and do a general repair business besides. Will buy or lease a plant in the South. We have the goods and the brains. Who has the money to finance it? Would incorporate for \$30,000. No curiosity seekers need apply. Address No. 944, care Manufacturers Record.

TO CORPORATIONS OPERATING IN TEXAS Under Permit—You need an agent at Austin. I will attend to all your business with departments of the Texas State Government during this year for \$10. Address W. R. Davis, Resident Agent, Box 317, Austin, Texas. Reference, Austin National Bank.

THREE INDUSTRIAL OPPORTUNITIES. \$200,000 telephone system and exchanges, Central Texas; pays 10 per cent. net income. A \$75,000 iron foundry and machine shop, North Texas city. A \$10,000 brick plant, truck railway, North Texas. All above or either for trade for income property or land. H. H. Hyde, Central Bldg., San Antonio, Texas.

TO A PRACTICAL HANDLE MAN, who is well recommended, we will sell on easy terms that he can pay for it from the earnings of the plant, an up-to-date plant for making hickory tool handles, singletrees, neckyokes, broom handles; well equipped with an abundant supply of available timber. Address No. 829, care Manufacturers Record.

HAWTHORNE, FLORIDA, wants an up-to-date hotel keeper to run an all-year hotel. We have a house already furnished, newly painted, and situated on big lake near depot. Will rent this place at a reasonable price. Party must give references. If you mean business, write us, and we will be glad to give you any information. We have a large transient trade, and many tourists come here for the winter. Hunting, fishing and boating is fine. Hawthorne Board of Trade.

BUSINESS OPPORTUNITIES.—We are headquarters for timbered and cut-over lands, sawmill locations, etc. Attractive offerings in industrial, manufacturing and general business propositions. Gilt-edged securities in several growing Florida corporations. Make a specialty of promoting meritorious enterprises; no others considered. Our business is conducted on a high plane, and it is our unalterable policy to handle only such propositions that we can thoroughly endorse and place on their merits. Numerous references gladly submitted as to our ability and reliability. Marcus E. Sperry, 217 American National Bank Building, P. O. Box 596, Tampa, Florida.

WE PROMOTE TOWN LOT SALES.—Land owners adjoining thriving cities, cut your acreage up into town lots, employ us to conduct a red-tag sale. We'll take the lots to the mint and coin them into money for you. Owners, write for particulars. F. J. Raymond Realty Co., Evansville, Ind.

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FLORIDA winter home and celery farm, 10 acres, subirrigated, facing St. Johns River; finest fishing and shooting; beautiful bungalow, surrounded by orange trees. Address Cecil Gabbett, Sanford, Florida.

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MAPS OF TEXAS COUNTIES.—We make blueprint maps of nearly all Texas counties and several Louisiana parishes. Write for prices on these desired. Singleton Bryan & Co., Beaumont, Texas.

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IF YOU are interested in purchasing a high-grade typewriter and do not care to invest \$100 asked by the manufacturers, we would like you to investigate our remanufactured machines. Three days' trial allowed. Enterprise Exchange, Inc., 609 E. Baltimore street, Baltimore, Md.

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WANTED—To correspond with parties desiring or contemplating installing absorption ice machines manufactured by Columbus Iron Works. Consolidated Ice & Power Co., Valdosta, Ga.

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MISCELLANEOUS

WANTED—Men with capital to take active working interest in existing enterprises in Asheville and to establish new industries here; good locations for woodworking plants, especially stove mills. Write quick. Board of Trade, Asheville, North Carolina.

VICTORIA, TEXAS, head of navigation of Guadalupe River; center of cotton, corn, truck and citrus fruit-growing district of South Texas; country rapidly developing; opportunities for many industries. If interested in the coastal section of Texas, write for booklet "D" to the Secretary of the Progressive League.

WHAT CAN YOU DO? What can you make? No matter what it is, you can do it better in Spartanburg and make it better in Spartanburg, because Spartanburg will help. Best distributing point in the South. Alive with opportunities. If you mean business, address Chamber of Commerce, Spartanburg S. C.

SUFFOLK.—The best manufacturing and distributing point in Virginia; six railroads and water transportation; plenty of labor; cheap fuel; electric power; seventy manufacturing plants in successful operation; opportunity for furniture and woodworking plants and any wholesale jobbing or manufacturing business; center of tidewater; richest farming section to be found; healthy; excellent schools and churches; filtered water, gas and sewer. Write Board of Trade, Suffolk, Va.

CLEVELAND, TENN. WANTS YOU.—The best town in the Southeast, with a hydro electric development of 32,000 initial horsepower for manufacturing purposes, final development 82,000 horse-power. Free manufacturing sites; exemption from city and county taxes; ample railroad facilities; spring water pumped to all parts of the city; cheap raw materials; 186 miles of pipe roads in county; fine farming and trucking section; best of public utilities; cheap white labor; cheap power; ideal location for cotton mill, furniture factory and brick-manufacturing plant; good climate; most rapidly developing city in the Southeast. Write Commercial Club, Cleveland, Tennessee.

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FACTORY BUILDING FOR SALE.—Two-story brick concrete building; best drykiln in Oklahoma; warehouse, brick paint or dipping room; truckage suitable for woodwork of any kind. Write for particulars. W. J. Finch, El Reno, Okla.

FURNITURE AND WOODWORKING PLANT \$40,000.—COMPLETE new furniture, showcase and woodworking plant on sidings of two railway systems, Texas town of 6500 people; good market; material convenient; water free; fuel inexpensive; thoroughly modern plant, ready for immediate operation. Oliver & Remy, San Marcos, Texas.

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FOR SALE OR LEASE AT HOUSTON, TEXAS.—A complete planing-mill plant, including buildings and ample ground for yards, located on two railroad tracks and convenient to the city; an excellent site for milling in transit. For particulars address H. C. House, Houston, Tex.

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FOR SALE AT A BARGAIN.—Complete equipment of an electric-light plant, consisting of one 14x36 mill type Murray Corbin engine, 2 85 H. P. Atlas tubular boilers, 1 Gem City heater, 3 boiler-feed pumps, smokestacks and settings, 1 90 K. W. single-phase A. C. generator, skeleton switchboard and instruments. Will sell all or any part. For prices and description address City Light and Water Plant, Coleman, Texas.

CEMENT BLOCK PLANT

CEMENT-BLOCK PLANT.—\$2500 equipment, \$1500 stock, \$5000 plot of ground; two blocks from center of most rapidly growing city in Georgia; business paying from \$200 to \$3000 per year; will sell for \$3000; \$200 cash; balance time. Address Box 666, Fitzgerald, Ga.

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FOR SALE.—Lumber yard; good stand; well established; excellent returns on money invested; sales average \$100,000 annually; small modern equipped mill, propelled by electrical power; one of the best propositions of its kind in Western Pennsylvania; good reasons for selling. For further particulars address L. M. Swartz, Charles St., N. S. Pittsburgh, Pa.

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FOR SALE.—Sand-lime brick plant, located at Live Oak, Florida, in a most flourishing community, which is rapidly growing from all standpoints; plant fully equipped and ready for operation; owners are not familiar with its operations, but will take stock with parties who thoroughly understand the business. Write for the full particulars. W. H. & J. H. Dowling, Live Oak, Fla.

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RELIABLE, accurate and definite information regarding the possibilities for investment in high-grade land propositions in Mississippi and Louisiana; fourteen years successful operation; references exchanged. Walter G. Hodges, Meridian, Miss.

FOR SALE.—123 acres of fine suburban property; big money in developing into city lots. See us at once. Folts & Spauld, Winston-Salem, N. C.

SOUTHWEST MISSOURI mineral and farm land and general merchandise; 25 acres; tons of lead in sight on top and in shaft on adjoining land waiting erection of mill. Address John Bradley, Gailaway, Mo.

ONE AND ONE-QUARTER MILLION ACRES, of which 400,000 are underlaid with 4 to 12-foot coal vein; State of Coahuila, Mexico; 60c. acre. Power & Brooks, Montgomery, Alabama.

FOR SALE.—Some of the finest mineral and timber properties on the market. Write us for information concerning Southern mineral lands, coal and timber. Southern Realty Co., 302 Seaboard Bank Bldg., Norfolk, Va.

FOR SALE.—Gold mine property, containing 750 acres; right price to quick buyer; same has been scientifically prospected; owner will sell direct, sell all or one-half interest; pay you to investigate. Address No. 945, care Manufacturers Record.

ALABAMA.—I offer for sale 75,000 acres of coal and timber lands at attractive figures. Henry Scharfetter, 217 St. Paul St., Baltimore, Md.

WRITE for list New Orleans residence lots and factory sites; Louisiana mineral, timber, cut-over and farm lands. Orient Co., Ltd., 513 Audubon Bldg., New Orleans, Louisiana.

FOR SALE.—1400-acre tract of land, suitable for town site and small truck farms, located on trunk-line railroad, and in 3 miles of Birmingham, Ala., the best truck market in the South. Price \$12.50 per acre; one-fourth cash; balance easy; or might use good stocks or bonds in lieu of cash payment. Address No. 944, care Manufacturers Record.

FOR SALE.—Boundary of 255,000 acres in State of Durango, Mexico; good ranch, mineral and timber land; contains 500,000,000 feet yellow pine; railway building within 25 miles of lands; 25-mile tramway to new railway can be built at small cost; 100 miles to Pacific port of entry by rail, for ship-loading for use of Panama Canal route and for all American and European shipping markets. We control and can deliver promptly this valuable boundary for \$2.50 per acre; one-fourth down; one, two and three years for balance. Principals only need reply. Address for particulars, J. C. Lindley, Groupboro, N. C.

Classified Opportunities

BEFORE YOU BUY LAND or make an investment in the South or Southwest send for a copy of my "Investor and Land Buyer" with list of splendid properties for sale; free on application. Jo A. Parker, Parma, Mo.

WE HAVE FOR SALE in fee delivery 15,000 acres coal and mineral lands, located in the heart of rich coal and mineral belt of East Tennessee, bordered on two sides by railways; lands lay best for easy and low cost of operating of any old settled Gird coal lands; labor can be had in abundance, and reasonable acreage of 12,000 tons of good domestic and coke-making coal to the acre. Present owners own and have owned the fee to these lands for 15 years. Taxes paid and absolutely no squatters. Owners live near property. They will commence the abstracting when actual buyers of standing arrive on land and commence inspection, making deposit in escrow in local bank of one-fourth purchase price pending approval. Price \$18.50 per acre; 6 months, one-fourth down; 1, 2 and 3 years deferred. Address J. C. Lindley, Greensboro, N. C.

COAL LANDS FOR SALE

VALUABLE COAL TRACT FOR SALE—A 400-acre tract of coal land, located in East Tennessee, containing six workable surface veins of high-grade coal, suitable for steam, domestic and coking purposes, besides several excellent workable veins under the surface. The property is now within four miles of a railroad, and a charter for a new railroad has recently been taken out, the proposed route being through the center of this property. There is between 12,000,000 and 15,000,000 feet of merchantable hardwoods on the tract that can be cut and marketed at a handsome profit just as soon as this new road is completed. The price on the new road is \$45 per acre, all cash, or \$50 per acre on terms. Blueprints and engineer's report will be furnished genuine buyers who can show financial ability to purchase such a property. Correspondence solicited with principals only; no agents. Address Albert F. Lee, 216 Sixth Ave., Nashville, Tenn.

400 ACRES OF COAL LAND in Kentucky for sale; in sight of railroad; deal direct with purchaser. Apply at once. W. H. Tompkins, Bristol, Tenn.

FOR SALE OR LEASE—Eighteen thousand acres well-bodied coal land in Warrior coal fields. For coal, timber and farm lands write C. W. Hare, Tuskegee, Ala.

COAL AND TIMBER LANDS

COAL AND TIMBER LANDS FOR SALE. 3000 acres of coal and timber lands in Letcher county, Kentucky, in one tract, underlain with African veins of coal, ranging from two to ten feet thick; in all, about 63 feet of coal in one mountain, the first vein at base of mountain seven feet thick. Also, about 10,000 acres, about one-half in fee, and the other coal and mineral; 3000 acres of this on headwaters of Kentucky river, all carrying the big Elkhorn seam of coal, as well as other seams. The extension of the L. & E. Railroad, from Jackson, Ky., to the head of Elkhorn, runs through part of these lands and nearby the remainder. For further particulars as to prices, etc., call on or address J. H. Frazier, Whitesburg, Ky.

FOR SALE—Twenty-one hundred acres of timber and coal land, in fee, in Greenbrier county, West Virginia; estimated to cut fifteen million feet or more; five miles from B. & O. R. R., and an excellent route for building an extension right through the property; two veins of coal of New River series on the property. The land, surface and coal alone are worth a minimum of \$35 an acre. Price for all, in fee, only \$50 an acre.

We deal in West Virginia coal lands, timber lands, orchards and orchard lands, oil and gas lands, leases, royalties and production. If interested in any kind of land investment in West Virginia, from a thousand to a million dollars, write us, telling what we'll interest you.

West Virginia Tri-Products Company, H. L. Swisher, President, Morgantown, W. Va.

TIMBER FOR SALE

FIFTY MILLION FEET of long and short leaf standing pine timber for sale; fine logging proposition. Address E. A. Hawes, Jr., Atkinson, N. C.

FOR SALE—40,000,000 feet of first-class hardwood and cypress, situated right on a railroad. Apply to E. J. Iles, Alexandria, La.

FINE TRACT HARDWOOD, 12 miles from Nashville, will sell for \$10 per acre. Address W. E. Hodges, Cowan, Tenn.

HARDWOOD TIMBER FOR SALE—3400 acres, 10,000,000 feet, 70 per cent. oak; fine cypress proportion; price \$18 per acre, in fee. 6000 acres, 20,000,000 feet, 70 per cent. oak; bargain for quick sale; \$7.50 acre, in fee. Box 364, Alderson, W. Va.

DOGWOOD BLOCKS WANTED

WANTED—To buy dogwood blocks for fuel. H. B. Worth, Greensboro, N. C.

TIMBER LAND FOR SALE

20,000 ACRES Mexican timber lands for sale; will cut 80,000 feet to the acre; real bargains; get in on them now; 300 kinds of wood. Write J. C. Bollinger, Hagerstown, Md.

LAND WORTH THE MONEY—5000 acres, 20,000 feet or more wagon and buggy timber; good sawmill location on railroad; timber, \$7.50 per acre; land and timber, \$12.50 per acre; best and handsomest proposition in Southwest; part cash; balance conveniently arranged. R. L. Lassiter, Bassett, Texas.

FOR SALE OR WILL EXCHANGE for income-paying property, 6500 acres hardwood timber in Georgia; will cut 50,000,000 feet; good freight rates, rail or water; especially good export rates; ideal location for furniture or other manufacturing plant; best timber proposition for its size in the South. Address No. 339, care Manufacturers Record.

FIFTY THOUSAND ACRES VIRGIN TIMBER in Central Florida. Professional estimate shows hundred and twenty million feet long-leaf pine, ten million swamp cypress; splendid transportation facilities; trunk-line railroad. Best offering in Florida at this time. \$30.50 per acre, fee simple, warranty deed, \$100,000 cash; balance, terms to suit, low interest. Interested parties wire or write Marcus E. Sperry, 217 Am. National Bank Bldg., Tampa, Fla.

FOR SALE—925 acres virgin hardwood timber land, Southwest Arkansas; 3 1/2 miles from station; mostly Ark. specie; fine valley land; bargain. H. A. Mann, Evansville, Ind.

CUT-OVER LANDS

CUT-OVER TIMBER TRACTS. 50,000 acres cut-over pine lands, Miss. \$2.50 30,000 acres cut-over pine lands, La. 5.00 75,000 acres cut-over pine lands, Tex. 6.00 15,000 acres cut-over hardwoods, La. 4.50

Marsh Lands for Reclamation. 60,000 acres in a body, Gulf Coast of La. 3.00 Timber Lands. 20,000 acres L. L. Y. pine, Fla., cut 3500 ft. 7.00 15,000 acres L. L. Y. pine, Ala., cut 7000 ft. 21.00 30,000 acres hardwood, cut 10,000 ft. (60% red gum) 10.00 Finest red gum proposition South. Wm. R. Taylor, 508 Perrin Bldg., New Orleans, La.

10,730 ACRES Louisiana hardwood timber lands, 104,000,000 ft., on Sabine River, \$15 acre. 20,000 acres rich dark bottom cut-over hardwood, S. W. Arkansas, lands on Ry., \$6 acre. 35,000 acres Louisiana cut-over lands, \$5 acre. Robert Sessions, Winthrop, Ark.

FARM AND TIMBER LANDS

ARKANSAS hardwood timber tracts; in touch with owners; have some bargains. Yell county colonization proposition, 15,000 acres, at \$5; timber enough to pay out. Fredricks Realty Company, Springdale, Ark.

FARM AND TIMBER LANDS. We have attractive offerings in farm, yellow pine and hardwood timber lands. We also handle coal and ore properties. Correspondence from interested parties invited. Provident Trust & Security Co., Land Dept., Walton Bldg., Atlanta, Ga.

I HAVE BARGAINS IN TIMBER TRACTS, large colonization propositions, cut-over lands and reclamation tracts in any size wanted up to 150,000 acres from \$2.50 per acre up.

Wm. R. Taylor, Land and Timber Investments, 508 Perrin Building, New Orleans, La. Established 1895. Sales over \$6,000,000.

COLONIZATION LANDS

11,000 ACRES fine agricultural land, including an entire town of some 50 dwellings and many more assets. Price \$3.50. Vestal & Haygood, Arkadelphia, Ark.

PLANTATIONS FOR SALE

3555 ACRES of good hill cotton land for sale; now in successful operation; well supplied with negro labor. The plantation lies between two branches of the Illinois Central Railroad; nearest shipping point, four miles from the dwelling. The land corners within half mile of one of the shipping points. A sufficiency of cabins for tenants, stables, cribs, cotton pens and all outhouses. Forty-five head of mules and horses, cows, farming implements and feedstuff. Price very low. Terms good. Address A. C. Leigh, Gretna, Miss., bona-fide owner of the property.

FARMING LANDS

WE OWN and offer for sale on easy terms more than 100,000 acres of farming lands in Louisiana and Mississippi. Anyone interested in Southern investments should write us direct and save the middleman's profit. The Lampton Realty Co., 405 Hibernia Bank Building, New Orleans, Louisiana.

FARM AND RANCH LANDS

| | |
|-----------------------------|-----------------------|
| 90,000 acres Durango, | price \$1.75 per acre |
| 80,000 acres Coahuila, | price 2.25 per acre |
| 80,263 acres Chihuahua, | price 3.00 per acre |
| 100,000 acres Sonora, | price 3.00 per acre |
| 375,390 acres Durango, | price 3.00 per acre |
| 162,783 acres Chihuahua, | price 2.00 per acre |
| 135,147 acres Durango, | price 3.00 per acre |
| 230,000 acres Coahuila, | price 1.50 per acre |
| 8,500,000 acres Chihuahua, | price 2.50 per acre |
| 405,000 acres Chihuahua, | price 2.00 per acre |
| 32,830 acres Tamaulipas, | price 2.50 per acre |
| 70,000 acres Chihuahua, | price 1.50 per acre |
| 28,000 acres Chihuahua, | price 3.50 per acre |
| 108,355 acres Tamaulipas, | price 2.25 per acre |
| 179,445 acres Tamaulipas, | price 2.25 per acre |
| 80,250 acres Coahuila, | price 2.75 per acre |
| 1,115,840 acres Tamaulipas, | price 2.50 per acre |
| 1,295,395 acres Sonora, | price .75 per acre |
| 191,000 acres Sonora, | price .75 per acre |
| 60,000 acres Durango, | price 4.50 per acre |
| 200,000 acres Durango, | price 2.00 per acre |
| 100,000 acres Sinaloa, | price 5.50 per acre |

Cass & Fry, 30 City National Bank Building, El Paso, Texas.

PECAN ORCHARDS

VALDOSTA, GEORGIA, PECAN PLANTATIONS.—Pecan culture offers largest returns; five-acre tract on easy payments assures a steady growing income; we take care of orchards for four years; 300 acres under cultivation in budded paper-shell pecans. Write for booklet. South Georgia Real Estate & Development Co., Valdosta, Ga.

APPLE ORCHARDS

440-ACRE APPLE FARM; 20,000 bearing trees; yearly profit \$15,000; located in Arkansas apple belt; \$50 per acre for short time. Vestal & Haygood, Arkadelphia, Ark.

ORANGE GROVES

FLORIDA ORANGE GROVE.—Forty acres, 500 trees, 7-room house, on beautiful lake, near live town; good trucking land. This place sold several years ago for \$10,000. On account of death of owner we offer for immediate sale at \$7500, half cash. This property can be made to pay well and is a big bargain. King & King, Jacksonville, Fla.

FARM, FRUIT AND TRUCK LANDS

ALABAMA

FOR A HOME OR FOR INVESTMENT let us write you interestingly of more than 400,000 acres of desirable land which we have for sale at wonderfully low prices in Alabama. Any location, large or small farm, pasture and fruit lands. Picking out bargains throughout the State is our daily business. Alabama State Agricultural Land Co., Center, Ala.

DO YOU WANT A FARM LIKE IT WAS GIVEN TO YOU? We have 400 acres best Cullman county lands. We will sell any part for five dollars per acre without cash payment to anyone who will improve same. Improved farms and small tracts close in for sale on terms. Write for booklet. Fuller Realty Co., Cullman, Ala.

FOR SALE—Four acres of fine hammock land on the bay, just across from Panama City; one acre cleared and set in orange trees four years old; a beautiful location for a home. Price, one thousand dollars; half cash, and balance in one and two years. Apply to C. S. Tutwiler, Dothan, Ala.

ARKANSAS

FOR SALE—1100 acres nice level land on south side of the Ozarks Mountains; artesian water; healthy location; plenty fish and game; bargain. H. A. Mann, Evansville, Ind.

\$1.00 PER ACRE down will buy a farm in "Land of Delight"; shallow artesian water; delightful climate; fine soil; easy terms. Write Union Realty Co., Gordon, Ark.

FOR SALE—440-acre farm in Desha county, two miles from Dumas; 175 acres in cultivation; has six houses and rents for \$4 per acre; all kinds of fruit, peaches and apples bear this year; good deep red soil, all tillable; an ideal poultry farm; just 53 miles from Kansas City. Can be bought for \$4000 cash if bought before Feb. 1. For information write J. M. Parks, 311 Park, Lawton, Ok.

CUBA

SPLendid TRACT, timber, cross-ties, water-power, colonies, fruit, coffee, chocolate, stock; finest soil, climate, health, transportation; \$4.40 per acre. J. O. Andrews, Gainesville, Fla.

FLORIDA

FLORIDA FARMS ARE FORTUNES.—Our soil similar to fertile sections Iowa, Missouri; easy-payment plan. Write for booklet. Milton Land & Investment Co., Marianna, Fla.

FARMS FOR SALE in the best general farming district of Florida; not ten-acre tracts, but from forty to one thousand acres, on which can be made money. Prices reasonable. J. D. Alderman, Jacksonville, Fla.

FOR SALE—Four acres of fine hammock land just across bay from Panama City, Florida, one acre cleared and set in orange trees four years old; a beautiful location for a home. Price, one thousand dollars; half cash, and balance in one and two years. Apply to C. S. Tutwiler, Dothan, Ala.

WRITE US for listings covering open and improved tracts of citrus and vegetable lands in all parts of Florida; many attractive offerings. Our specialty: Tampa and suburban property. Have an exceptionally fine subdivision proposition; platted and ready for market; forty acres; frontage on eighty-foot paved street; ten minutes from center of Tampa; listed with us exclusively at a bargain. Telegraph or write Sperry Land Company, 217 American National Bank Bldg., Tampa, Fla.

FLORIDA FRUIT AND TRUCK LANDS.—We offer 10-acre tracts in that part of the State of Florida lying in Hillsboro county and Lake Butler region, in the Pinellas peninsula, on the west coast of Florida, on the Gulf of Mexico; with its elevation and rolling hills is especially suited for fruits of all kinds—grapefruit, oranges, grapes, dates, figs, bananas, peaches and other fruits, as well as vegetables, potatoes, corn, beans, peanuts and all the varieties that can be produced anywhere. The Tarpon Springs district offers the most favorable conditions for farmer, home seeker and investor. Fertile land in small tracts, easy monthly payments; guaranteed title. Investigation invited. If you want a bargain and a home in the most desirable part of Florida, write now for particulars and reservation. Tampa & Tarpon Springs Land Co., Tampa, Florida.

300 ACRES of the best improved farm lands in Fayette county; nice 6-room dwelling, 6 tenant-houses, 2 barns and several out-houses on the place; buildings alone worth \$5000; in 1 1/2 miles of growing town. This is an ideal country gentleman's home and is a pick-up at \$15,000; must be sold at once. Address Owner, P. O. Box 102, Senola, Ga.

A GEORGIA BARGAIN.—375 acres Liberty county; 7-room dwelling; large barn, many outbuildings, cattle sheds, etc.; 130 acres in cultivation; 18-acre pear orchard; 50 bearing pecan trees, best varieties; 200 acres fine timber; good neighbors, church and school; no better soil in Georgia; crops never fail; healthy; near salt river; three miles from railroad station. R. K. Walker, Citizens' Trust Bldg., Savannah, Ga.

LOUISIANA

HEADQUARTERS FOR NORTH LOUISIANA LANDS.—Large and small tracts, suitable for plantations, small farms, orchards or truck gardens. Climate, soil and health conditions here are unsurpassed. The staple crops of the North grow in this section alongside of cotton and cane. A great stock country. Write for particulars stating your requirements. References, my customers and any bank in Shreveport. W. A. Jones, Authority on North Louisiana Lands, Shreveport, La.

FORTY-ACRE TRUCK FARMS for sale in the famous strawberry belt of Louisiana; on main line of Illinois Central Railroad. Price \$25 per acre on easy terms. Similar lands only a few miles distant are selling as high as \$75 per acre. The Lampton Realty Co., 405 Hibernia Bank Building, New Orleans, Louisiana.

MISSISSIPPI

FORTY-ACRE FARMS in George county, Mississippi, 35 miles northwest of Mobile. This is one of the most-favored general farming sections of the entire South, and no better values can be found anywhere. Price \$25 per acre on easy terms. The Lampton Realty Co., 405 Hibernia Bank Building, New Orleans, Louisiana.

NORTH CAROLINA

FOR SALE—3000 acres in delightful Eastern North Carolina; mild winters; breezy summers; land located on new railroad and county road. For quick sale only \$5.50 per acre. C. H. Loper, Rocky Point, N. C.

WANTED—Men to become independent farmers in Eastern North Carolina, the "Nation's Garden Spot." Leads for large profits on small capital. Write for booklet. C. Van Leuven, 815 Southern Bldg., Wilmington, N. C.

OKLAHOMA

I HAVE a very fine 11-acre tract of land 3/4 mile from depot of a good town, with new 5-room house; new smokehouse; new barn, with hold 5 horses; fine cellar; A No. 1 clear, with abundance of good water, with double filter; all kinds of fruit, peaches and apples bear this year; good deep red soil, all tillable; an ideal poultry farm; just 53 miles from Kansas City. Can be bought for \$4000 cash if bought before Feb. 1. For information write J. M. Parks, 311 Park, Lawton, Ok.

TEXAS

2464-ACRE FARM on Lavaca River, 5 miles north of Edna, Texas; 500 acres river bottom field; 10 small rent houses; one 10-room ranch house; private phone line out of Edna; all fenced; several wells; 3000 bearing pecan trees; will sell or trade for good city property at \$35 per acre. Emil Locks, 712 Gibbs Bldg., San Antonio, Texas.

TEXAS COAST COUNTRY BARGAIN.—8000 acres fruit and general farm land surrounding a railroad station at small town 55 miles from city; 600 acres now in cultivation; only \$12 per acre; terms if desired. C. H. Stancil Land Co., Houston, Texas.

FOR SALE—Either of two tracts of land, containing 94 acres and 100 acres, respectively, situated near Hillendahl, in Harris county, 8 miles from center of city of Houston; the choicest proposition in South Texas. Address quick, Box 58, Schulenburg, Tex.

THE BLACK LANDS OF NORTH TEXAS are justly famous as the best in the world for the production of cotton, corn, wheat and oats—not one crop, but four. Once Goodwin's Denton Creek Subdivision consists of more than 9000 acres of this land, situated on the Denton and Wise county line, 50 miles northwest of Dallas, and is offered at reasonable prices—thirty to forty dollars per acre—and upon such terms that any man with a few hundred dollars cash can easily meet. The gradual and steady enhancement in value of such land should appeal to investors, while the very easy terms upon which it is offered should appeal to the farmer without a home. Address Fount Ray, Decatur, Texas.

ORANGE LAND.—Texas gulf coast orange, fig and garden farms; \$15 down and \$15 per month; black loam prairie; good roads, schools, churches and markets; between Houston and Galveston. Send for illustrated literature. Agents wanted. L. Bryan & Co., Houston, Texas.

10,000 ACRES Nueces River bottom land; all subdivided into small tracts; very best truck and fruit land in Southwest Texas; will sell in small tracts or in a body. Emil Locks, 712 Gibbs Bldg., San Antonio, Texas.

Classified Opportunities

[CONTINUED FROM PAGES 80 AND 81.]

COTTON AND CORN LAND.—12,500 acres, near two good railroads, being one mile from one and two miles from the other; splendid colonization tract; at \$10 per acre; one-fourth cash; balance 6 per cent. Address owner, Dr. C. S. Preston, 1007 Scanlan Bldg., Houston, Texas.

JAS. GOODE REAL ESTATE CO., ranch and irrigated lands. Office, Orient Hotel, Pecos, Tex.

THE FRIO VALLEY WINTER GARDENS. La Salle county, Southwest Texas, a colony of 100,000 acres level rich black sandy loam in famous arid belt; grow oranges, figs, Bermuda onions. We are opening Fowerton, a new town on new railroad in heart of the colony. Guaranteed improvements on town-site. A 10-acre farm and free residence lot on terms of \$15 cash; balance \$10 monthly. Write for booklet A, prices, plans, etc. Fowler Brothers Land Co., Frost Building, San Antonio, Texas.

TEXAS FARM FOR SALE.—640 acres, near Crowell, Ford county, Tex.; 150 acres in cultivation; 550 acres good agricultural land; black, rich soil, now in grass; good fences and cross-fences; one three-room dwelling; good well and cistern; six miles from county seat and railroad; 1½ miles from school and church; thickly settled; good neighborhood. Price \$25 per acre. Address William Woodward, Flat Creek, Tenn.

BISHOP, TEX.—Fastest growing town in Southwest Texas; cotton, fruit and vegetable land unexcelled. Write for booklet and sworn statements. Commercial Club, Bishop, Tex.

MACHINERY AND SUPPLIES

WANTED.—Every consumer in the Southwest to know that the Texas Rolling Mill Company of Fort Worth, Texas, manufactures track spikes, track bolts, machine bolts and nuts; also standard sizes of bar iron. One hundred tons always in stock. Prompt shipments our specialty. Satisfaction guaranteed.

LOCOMOTIVES FOR SALE

FOR SALE.—Ten locomotives, suitable for tramroad and sawmill purposes. Now being rebuilt at Tampa Northern Shops. Aripeka Sawmills, Tampa, Fla.

FINANCIAL

WANTED—LOAN.—\$3000 for 3 or 5 years at 6% secured by first mortgage on new toll bridge over Licking River cost over \$8000; perfect title; stock bonus. Bath-Rowan Bridge Co., Inc., Farmers, Ky.

3 PER CENT. 5-YEAR OKLAHOMA FARM MORTGAGES.—Yes, rate is high, but sure and easily paid; conditions warrant it, and you get benefit; lands cheap, rich; values doubling; 25 years' experience in Southwest; 10 years bank cashier here; know people, lands, laws, resources, local conditions; never lost a mortgage nor had a title contested; abundant references; circular; investigate. J. G. James, Roff, Oklahoma.

PATENT ATTORNEYS

EUGENE C. BROWN, ENGINEER and Patent Lawyer, Suite 40 Victor Building, Washington, D. C. Member Bar U. S. Supreme Court. Patents and Trademarks. Inventions are considered both from Engineering and Legal standpoints in his prosecution of patents. An experience of over 9 years as Examiner in U. S. Patent Office and over 6 years as Patent Expert in important patent suits are his special qualifications. Reports upon validity and infringement. Send sketch of invention for advice.

PATENT YOUR IDEAS.—\$100,000 offered for one invention, \$5000 for another; book, "How to Obtain a Patent" and "What to Invent," sent free; send rough sketch for free report as to patentability; patent obtained or fee returned. We advertise your patent for sale at our expense. Chandler & Chandler, patent attorneys, 978 F street, Washington, D. C.

IDEAS WANTED.—Manufacturers are writing for patents procured through me. Send for free 72-page guide and "Stepping Stones" (containing over 200 inventions wanted). Personal services. Clients' patents sold free. Trade-marks registered. R. B. Owen, Dept. 12, Washington, D. C.

PATENTS Secured or Fee Returned. Send sketch for free report as to patentability. Guide book and what to invent, with valuable list of inventions wanted, sent free; \$1,000,000 offered for one invention; \$16,000 for others. Patents secured by us advertised free in World's Progress; sample free. Victor J. Evans & Co., Washington, D. C.

PATENTS FOR SALE

WE HAVE recently secured the following patents. Address all communications to Sales Dept., Victor J. Evans & Co., Washington, D. C.: E. M. Rea and E. A. Olden, insect destroyer; M. L. Severson, searchlight; John H. Hoffman, elements for electric rheostats; Hiram Holmes, evaporating pan; James Bulger, device for controlling locomotive headlight; G. H. M. Dooze, fishhook; E. L. Payne, tablet-forming press; W. Kirkegard, piano attachment; W. J. Morrison, batpunch; C. W. Funk, stock water tank; J. D. Sampley, signal lamp raising device; Fritz Edlund, dish container; Henry W. Jacobs, tobacco pipe; Karl R. Huff, printing device; Chas. T. Bowen, fruit picker; Edward M. Crane, cap; Wm. A. Greer, cast-iron and wood wheel; Messrs. Fowler & Prather, motorcycle seat; A. J. Compton, sewing and calking knives; F. H. Warner, side car; A. S. Williams, headlight; Geo. W. Shank, reversing valve gears for engines; Clark W. Sharrow, haircutting gauge; Julius A. Rund, doughnut lifter.

FOR SALE.—U. S. Patent 1,001,021, Canada 137,677, automatic mail carrier. Want assignors on allowed patent for self-closing door without springs. 1631 Ruffner St., Philadelphia, Pa.

PROPOSALS

PUBLIC BUILDINGS.

CONSTRUCTION BONDS

MISCELLANEOUS.

GOVERNMENT PROPOSALS

PROPOSALS FOR GENERAL CONTROL Apparatus for the Lock Machinery, including Starting Panels for all motors which are to be controlled from a remote point; Limit Switches, Commutating Switches used in the motor-gate control. Auxiliary Cut-out Switches for meter-gate strut. Handrail Controllers, Miscellaneous Remote Indicators and Indicator Controllers, Control Switchboards for all locks and spillways, and Control and Indicating Apparatus for the chain fenders. Sealed proposals will be received at the office of the General Purchasing Officer, Isthmian Canal Commission, Washington, D. C., until 10:30 A. M. March 1, 1912, at which time they will be opened in public, for furnishing the above-mentioned articles. Blanks and general information relating to this Circular (No. 679) may be obtained from this office or the offices of the Assistant Purchasing Agents, 24 State Street, New York City; 614 Whitney-Central Building, New Orleans, La., and 1086 North Point Street, San Francisco, Cal.; also from the U. S. Engineer Offices in the following cities: Seattle, Wash.; Los Angeles, Cal.; Baltimore, Md.; Philadelphia, Pa.; Pittsburgh, Pa.; Boston, Mass.; Buffalo, N. Y.; Cleveland, Ohio; Cincinnati, Ohio; Chicago, Ill.; St. Louis, Mo.; Detroit, Mich.; Milwaukee, Wis.; St. Paul, Minn.; Chattanooga, Tenn.; Louisville, Ky.; Mobile, Ala., and Galveston, Tex.; Commercial Club, Kansas City, Mo.; Chamber of Commerce, Quincy, Ill., and Commercial Club, Tacoma, Wash. F. C. BOGGS, Major, Corps of Engineers, U. S. A., General Purchasing Officer.

PROPOSALS FOR STRUCTURAL STEEL Material for Steel Cylinders, Rivets, Bolts, Nails, Pipe Wrenches, Manila Rope, Canvas, Metallic Brown, Black Paint, Wrapping Paper, Manila Folders, Thumb Tacks, Paste, and Ink. Sealed proposals will be received at the office of the General Purchasing Officer, Isthmian Canal Commission, Washington, D. C., until 10:30 A. M. February 23, 1912, at which time they will be opened in public, for furnishing the above-mentioned articles. Blanks and general information relating to this Circular (No. 680) may be obtained from this office or the offices of the Assistant Purchasing Agents, 24 State Street, New York City; 614 Whitney-Central Building, New Orleans, La., and 1086 North Point Street, San Francisco, Cal.; also from the U. S. Engineer Offices in the following cities: Seattle, Wash.; Los Angeles, Cal.; Baltimore, Md.; Philadelphia, Pa.; Pittsburgh, Pa.; Boston, Mass.; Buffalo, N. Y.; Cleveland, Ohio; Cincinnati, Ohio; Chicago, Ill.; St. Louis, Mo.; Detroit, Mich.; Milwaukee, Wis.; St. Paul, Minn.; Chattanooga, Tenn.; Louisville, Ky.; Mobile, Ala., and Galveston, Tex.; Commercial Club, Kansas City, Mo.; Chamber of Commerce, Quincy, Ill., and Commercial Club, Tacoma, Wash. F. C. BOGGS, Major, Corps of Engineers, U. S. A., General Purchasing Officer.

WAR DEPARTMENT, U. S. Engineer Office, Montgomery, Ala., January 24, 1912. Sealed proposals for dredging in Carrabelle Harbor, Fla., will be received at this office until one o'clock P. M. February 23, 1912. Information on application. G. D. FITCH, Lt.-Col., Engrs.

U. S. ENGINEER OFFICE, 920 17th St. N. W., Washington, D. C., January 27, 1912. Sealed proposals for furnishing and placing riprap on the seawall, Anacostia River, D. C., will be received here until 12 M. February 26, 1912, and then publicly opened. Information on application. W. C. LANGFITT, Lieut.-Col., Engrs.

PROPOSALS FOR MOTORS, CENTRIFUGAL Pumps, Float Switches, and Pump Motor Starters for the Canal Locks and Spillways. Sealed proposals will be received at the office of the General Purchasing Officer, Isthmian Canal Commission, Washington, D. C., until 10:30 A. M. March 8, 1912, at which time they will be opened in public, for furnishing the above-mentioned articles. Blanks and general information relating to this Circular (No. 681) may be obtained from this office or the offices of the Assistant Purchasing Agents, 24 State Street, New York City; 614 Whitney-Central Building, New Orleans, La., and 1086 North Point Street, San Francisco, Cal.; also from the U. S. Engineer Offices in the following cities: Seattle, Wash.; Los Angeles, Cal.; Baltimore, Md.; Philadelphia, Pa.; Pittsburgh, Pa.; Boston, Mass.; Buffalo, N. Y.; Cleveland, Ohio; Cincinnati, Ohio; Chicago, Ill.; St. Louis, Mo.; Detroit, Mich.; Milwaukee, Wis.; St. Paul, Minn.; Chattanooga, Tenn.; Louisville, Ky.; Mobile, Ala., and Galveston, Tex.; Commercial Club, Kansas City, Mo.; Chamber of Commerce, Quincy, Ill., and Commercial Club, Tacoma, Wash. F. C. BOGGS, Major, Corps of Engineers, U. S. A., General Purchasing Officer.

TREASURY DEPARTMENT, Bureau of Engraving and Printing, Washington, D. C., January 29, 1912. Sealed proposals will be received at this office until 2 P. M. Monday, March 4, 1912, to furnish during the fiscal year beginning July 1, 1912, the following classes of supplies: Dextrine, Plate Printers' Blanketing, Engravers' Supplies, and Dry Colors. The proposals must be received not later than the time above stated, but they will not be opened until 10 A. M. on respective dates as follows: Dextrine, Saturday, June 1, 1912; Plate Printers' Blanketing, Tuesday, May 28, 1912; Engravers' Supplies, Tuesday, May 28, 1912, and Dry Colors, Monday, June 3, 1912, on which date, at the hour named, they will be opened and recorded in the presence of bidders in the office of the Director of the Bureau. Awards will be made only to established manufacturers or to dealers in the articles. The right is reserved to reject any or all bids or parts of bids. Blank forms with specifications for proposals and further information will be furnished intending bidders on application to JOSEPH E. RALPH, Director.

TREASURY DEPARTMENT, Bureau of Engraving and Printing, Washington, D. C., January 29, 1912. Sealed proposals will be received at this office until 2 P. M. Monday, April 1, 1912, to furnish during the fiscal year beginning July 1, 1912, the following classes of supplies, viz.: Paper Box Blanks, Paper, and Paper for Postage stamps. The proposals must be received not later than the time above stated, but they will not be opened until 10 A. M. Monday, May 20, 1912, on which date, at the hour named, they will be opened and recorded in the presence of bidders in the office of the Director of the Bureau. Awards will be made only to established manufacturers or to dealers in the articles. The right is reserved to reject any or all bids or parts of bids. Blank forms with specifications for proposals and further information will be furnished intending bidders on application to JOSEPH E. RALPH, Director of Bureau.

U. S. ENGINEER OFFICE, 920 17th St. N. W., Washington, D. C., January 27, 1912. Sealed proposals for furnishing and delivering building stone and Portland cement will be received here until 12 M. February 26, 1912, and then publicly opened. Information on application. W. C. LANGFITT, Lieut.-Col., Engrs.

SEALED PROPOSALS, Indorsed "Proposals for finishing the crypt under the chapel, the tomb of John Paul Jones," will be received at the Bureau of Yards and Docks, Navy Department, Washington, until 11 o'clock A. M. February 24, 1912, and then and there publicly opened, for the completion of the crypt of the chapel at the United States Naval Academy, Annapolis, Md. Plans and specifications can be obtained on application to the bureau. A deposit of \$25 will be required as security for the return of the plans and specifications. WM. M. SMITH, Chief Clerk in Charge of Bureau, January 23, 1912.

Screening

Proposals will be received until March 4, 1912, for the screening of the Administration Building of the Alabama Masonic Home, located four miles from Montgomery, Alabama. Bids will be opened at office of Grand Secretary, Masonic Temple, Montgomery, Alabama, at 11:30 A. M. of above date. The right is reserved to reject any or all bids. BEN M. JACOBS, Chairman. Birmingham, Ala., February 5, 1912.

NEW BOND OFFERINGS

\$40,000 Bonds

Sealed proposals will be received by C. G. Seaton, Secretary Board of Education, Gary, McDowell county, W. Va., until 2 o'clock P. M. March 1, 1912, for \$40,000 5 per cent. coupon 20-34 Adkin District School Bonds. Bonds shall be forty in number, of the denomination of \$1000, each dated on first day of March, 1912, and payable at Gary National Bank, Gary, W. Va. They shall have coupons attached for the payment of the interest thereon, and the same shall be paid semi-annually at the same place that the bonds are payable, on the first day of September, 1912, and first day of March, 1913, and so on for each succeeding year until the bonds mature, unless sooner redeemed or canceled pursuant to law.

Bids will be considered for all or any portion of said bonds; no bid considered for less than par. Right to reject any and all bids reserved. Bids must be accompanied by certified check for \$100, payable to Board of Education, Adkin District.

Public Sale of District Bonds

Sealed bids for the purchase of \$50,000 road and bridge bonds issued by the County Court of Summers County for the District of Greenbrier, in said county, and for the purchase of \$55,000 road and bridge bonds issued for Talcott District, in said county, will be received by the President of this Court at the Courthouse at Hinton, West Virginia, up to 2 o'clock P. M. on the 19th day of February, 1912. A certified check of 5 per cent. of the amount bid must accompany every bid, and the Court reserves the right to reject any or all bids deemed by it unsatisfactory. County organized 1871.

Bonds issued under provisions Acts of Legislature, 1911, Chapter 38, Section 25a. All provisions complied with. No controversy or litigation threatened or pending concerning the validity of either issue, the corporate existence or boundaries of the districts or the title of the present officers to their respective offices.

COUNTY COURT SUMMERS COUNTY, W. A. Barger, President. Attest: W. P. BOWLING, Clerk. (File bids with the Clerk.)

Water-Works Bonds for the Town of Weldon, N. C., Issued as Provided by Law For Sale to the Amount of \$40,000.

Sealed bids will be received by the undersigned at Weldon, N. C., until February 25, 1912, at 12 o'clock M., for the purchase of forty thousand dollars (\$40,000) Weldon Water-works Bonds, to be issued in accordance with the laws of the State of North Carolina, Public and Private Laws, Extra Session, 1908, amending Chapter 83, Private Laws of 1891, the same being the charter of the Town of Weldon, the election under said law having been held on the 19th day of September, 1911, and having been declared in favor of water-works and sewerage by a vote of 159 to 10.

Said bonds bear interest at the rate of six (6) per centum per annum, payable annually, and said bonds are payable in twenty (20) equal installments, the first installment of principal to be due and shall mature at the expiration of ten (10) years from the date of issue and one installment for each succeeding year for nineteen (19) additional years, to be issued in denominations to suit the purchaser, and payable at such time and place as may be designated by the purchaser upon acceptance of bid.

Certified check of proposer to the under signed in the sum of \$500 required to accompany bids for the whole of such issue or proportionate part less than for whole.

The right to reject any and all bids is reserved. Bidders, if they so desire, may submit form of bonds with bids, or the same will be issued in form requested by successful bidder at the time of acceptance of bid.

Any further information may be had by application to the undersigned or to W. E. Daniel, Attorney for the Board of Commissioners, Weldon, N. C.

All bids must be submitted to the undersigned at his office at Weldon, N. C. This the 24th day of January, 1912.

W. W. WIGGINS,
Mayor of Town of Weldon, N. C.

\$150,000 Bonds

Sealed proposals will be received by G. Lee McGlasson, Clerk, Gainesboro, Tennessee, until 2 o'clock P. M. March 18, 1912, for \$150,000 Coupon 20-30 Jackson County, Tennessee, Good Roads Bonds. Same not to exceed 4½ per cent. interest. Bonds to be dated, delivered and paid for as follows: \$50,000 April 1, 1912. \$50,000 October 1, 1912. \$50,000 April 1, 1913.

Interest payable annually April 1 of each year. Denomination, \$1000. Bids will be considered for all or any portions of said bonds. Bids must be accompanied by certified check for 10 per cent. of bid, payable to order of Trustee, Jackson County, Tenn., as a guarantee of good faith. No bid considered for less than par. Right to reject any and all bids reserved.

T. M. GAILBREATH, Chrm. Co. Crt.
G. LEE MCGLOSSON, Clk. Co. Crt.
J. M. DEAN, Sect. G. R. Commrs.
Gainesboro, Tenn., January 10, 1912.

PROPOSALS

PUBLIC BUILDINGS.

CONSTRUCTION BONDS

MISCELLANEOUS.

NEW BOND OFFERINGS

\$150,000 Municipal Bonds

Sealed bids will be received by the Board of Bond Trustees of the City of Lakeland, Fla., until April 15, 1912, for \$150,000 of sewerage, street-paving and public-building bonds, dated March 1, 1912, and payable thirty to forty-four years thereafter, numbered from 1 to 150, of \$1000 each, ten of which shall be due and payable thirty years from date of issue, and ten each year thereafter until all are paid, bearing interest at the rate of 5 per cent. per annum, interest payable semi-annually on March 1 and September 1 of each year. The Board reserves the right to reject any and all bids. Each proposal or bid shall be accompanied by a certified check of \$1000, payable to the Board of Bond Trustees. Address all bids to C. G. MEMMINGER, Chairman Board Bond Trustees.

\$15,000.00 Morehead City, (North Carolina) Municipal Bonds, Interest 5 1/2 Per Cent.

The town of Morehead City, North Carolina, requests bids for (\$15,000) fifteen thousand dollars par value five and one-half per cent. thirty-year coupon bonds, interest payable semi-annually, to be issued for the purpose of paying the floating indebtedness caused by extending the water-works and electric-light system and street improvements. Sealed proposals will be received for the same up to eight o'clock P. M. the 4th day of March, 1912, and the same will be opened and publicly read at the meeting of the Board of Commissioners that day. Each bid must be accompanied by a certified check for the amount of five hundred dollars (\$500) as guarantee of entering into the contract according to the terms of the contract if accepted.

The city reserves the right to reject any or all bids and to accept that which may seem to be to the interest of the city of Morehead City. Principal and interest payable at the city of New York.

R. N. AYCOCK, Secretary.

North Carolina Drainage District Bonds, Issued Under the Laws of the State, For Sale.

Sealed bids will be received at the office of the undersigned at Dover, North Carolina, until February 15, 1912, at 12 o'clock M. for the purchase of forty-five thousand dollars (\$45,000) Moseley Creek Drainage District bonds to be issued in accordance with the laws of the State of North Carolina, Public Acts of 1909, as amended by Public Laws of 1911, bearing interest at 6 per cent. per annum, payable semi-annually; said bonds payable in ten (10) equal installments; the first installment of principal to be due and first mature at the expiration of three (3) years from date of issue, and one (1) installment for each succeeding year for nine (9) additional years; to be issued in denominations to suit purchaser, and payable at such time and place as may be designated by purchaser upon acceptance of bid.

These bonds are exempt from all county or municipal taxation or assessment, general or special, and the interest thereon shall not be subject to taxation as for income, nor shall said bonds be subject to taxation, nor the coupons thereon, when constituting a part of the surplus of any bank, trust company or other corporation, and are deductible from the assets of such corporation in ascertaining the taxable value of the shares of such corporations.

Bids invited for the whole or any part of said bonds. Certified check of proposer in the sum of \$500 required to accompany bids for the whole of such issue, or proportional part less than for whole.

Right to accept any and all bids reserved. Bidders may submit form of bond with bid, or the same will be issued in form requested by successful bidder at the time of acceptance of bid.

All further information concerning legality of issue may be had by application to Gulon & Gulon, Attorneys, New Bern, North Carolina.

All bids must be submitted to the undersigned at his office at Dover, North Carolina. This December 30, 1911.

PRESIDENT MOSELEY CREEK DRAINAGE DISTRICT.

WATERWORKS AND SEWERS

Repairs to Machinery, Water-Works Pumping Plant

Columbia, S. C.

Sealed proposals will be received by the Mayor and City Council of the City of Columbia, S. C., until 12 noon February 14, 1912, for repairing and overhauling generally the water-power pumping plant.

The work will consist of resetting pumps on new foundations, new shafting, reborring water-wheels, new pedestals for boxes, and other repairs.

Plans and specifications furnished upon request. No bid will be considered unless accompanied by a certified check for not less than 5 per cent. of bid as an evidence of good faith. The right to reject any or all bids is reserved.

F. C. WYSE,

Engineer-Superintendent.

W. F. STIEGLITZ,

Council Superintendent.

Sewerage System

St. Elmo, Tenn., February 2, 1912.

Sealed proposals will be received by the Commissioners of the Town of St. Elmo, Tenn., until 7 P. M. March 1, 1912, at the Town Hall, St. Elmo, for furnishing the material and labor and building, complete, a sewerage system of the town of St. Elmo, Tenn. The approximate amount of the work is as follows:

14 miles Pipe Sewers, 8" to 24".
1 Sewage Disposal Plant.
1 Bridge across Chattanooga Creek.
400 linear feet Tunnel.

The work may be let as a whole or in three sections as specified.

Plans may be seen at the office of the engineers, and copies may be had on payment of \$5 to cover cost of printing. Specifications may be had on application to either of the undersigned. A certified check for 7 per cent. of the amount bid must accompany each proposal. The Commissioners reserve the right to reject all bids or to accept any particular one and reject all others.

The successful bidder will be required to furnish bond in the sum of fifty (50%) per cent. of the total amount of the bid for the faithful performance of the contract and for the payment of all just claims for labor and material used.

H. B. WILSON, Mayor.

Cushman-Fairleigh Engineering Co.,
Engineers,
724 James Bldg., Chattanooga, Tenn.

Materials for Water-Works and Sewer Extensions, Pryor Creek, Okla.

Sealed bids will be received by the Mayor and City Councilmen of the City of Pryor Creek, Oklahoma, at the office of the City Clerk of said city, up to 6 P. M. Wednesday, February 14, 1912, for the following materials: 32 water hydrants, 14 valves and boxes (4" water line), 1 10" electric valve, 2 10" check valves, 6 10" gate valves, 1 100 H. P. horizontal tubular boiler; 1 steel stack, No. 14 gauge, 32" diam., 60' high; 1 feed-water heater, 100 H. P.; approximately 8500 linear feet 8" vitrified sewer pipe, 154 vitrified wyes, 20 manhole castings and covers, 25 M. vitrified building brick, 2 6" syphon flush tank castings, complete.

Each bid must be accompanied by a certified check in the amount of 10 per cent. of the total bid, but no check for less than \$25 will be accepted. Each bidder must be prepared to furnish the city with a satisfactory guarantee of material if required.

Plans and specifications are on file in the office of the City Clerk of the City of Pryor Creek, Oklahoma, and in the office of The Benham Engineering Co., 812-13-14 American National Bank Building, Oklahoma City, Oklahoma.

The City Council reserves the right to reject any or all bids.

JOE HILLIN, City Clerk,
City of Pryor Creek, Oklahoma.
THE BENHAM ENGINEERING CO.,
812-13-14 American Natl. Bank Bldg.,
Oklahoma City, Oklahoma,
Consulting and Supervising Engineers.

Sewerage System

Proposals will be received until March 4, 1912, for installing sewerage system at the Alabama Masonic Home, located four miles from Montgomery, Alabama. Bids will be opened at office of Grand Secretary, Masonic Temple, Montgomery, Alabama, at 11.30 A. M. of above date. The right is reserved to reject any or all bids.

BEN M. JACOBS, Chairman.
Birmingham, Ala., February 5, 1912.

PUBLIC BUILDINGS

School Building

NOTICE TO CONTRACTORS.

Sealed proposals will be received by Dr. Walter E. Dittmeyer of Harper's Ferry, W. Va., member of the Board of Education of Harper's Ferry School District, Jefferson county, W. Va., until 1 o'clock P. M. February 22, 1912, for the furnishing of labor and material for the construction and completion of a school building to be erected in Harper's Ferry, W. Va., in accordance with drawings and specifications prepared by Holmboe & Laferty, architects.

Copies of drawings and specifications can be seen at the store of Dr. Walter E. Dittmeyer on and after February 9, 1912, or at the offices of the Architects in Clarksburg, W. Va. Copies of the plans and specifications may also be obtained from the said Architects for the individual use of prospective bidders by depositing, for each set, a certified check for (\$25) twenty-five dollars, which will be returned to the maker after said drawings and specifications have been returned in good condition and a bid filed with the said Board. Those persons who desire copies of the plans and specifications are requested to notify the architects at once, that they may receive said plans and specifications as soon as completed.

Each bidder's proposal must be accompanied by a certified check for (\$500) five hundred dollars as a guarantee that contract and bond will be entered into by the successful bidder.

A legal and satisfactory bond will be required of the successful bidder, guaranteeing the faithful performance of the contract.

The Board reserves the right to reject any or all bids.

By order of the Board of Education. Signed,
C. E. TIPTON, President.
D. H. NICHOLS, Secretary.

Proposal for Erection of Hamilton County Jail, Chattanooga, Tenn.

Until 2 o'clock P. M. February 15, 1912, sealed proposals will be received by the Courthouse Commission at their office in the Hamilton National Bank Building, Chattanooga, Tenn., for the erection of the Hamilton County Jail.

Plans and specifications may be obtained from Barnwell & Jones, architects, Chattanooga, Tenn., after January 15, on deposit of \$25.

A certified check in the sum of \$2500, payable to M. M. Allison, chairman, must accompany each proposal. The successful bidder shall furnish a bond acceptable to the Commission in the sum of one-third of the contract price.

Proposals to be based upon monthly payments to be made upon architects' estimate of completed construction of 80 per cent. of said estimate. The balance of 20 per cent. to be paid upon completion and acceptance of said work.

The right to reject any or all bids is hereby reserved.

M. M. ALLISON,

Chairman.

MISCELLANEOUS

Proposals for Street Paving

ROME, GA.

Proposals will be received by the undersigned until 12 o'clock noon February 14, 1912, for grading, curbing and paving certain streets with either wood blocks, vitrified brick, Hassam compressed concrete, asphalt-macadam, sheet asphalt or bitulithic material. The work will embrace approximately furnishing and setting 6500 linear feet of curb, foundations and surfacing 17,000 square yards of pavement.

Specifications may be obtained from and plans and profiles seen at the office of the Supervising Engineer, Rome, Ga., and general information from the undersigned.

The right is reserved to reject any or all bids.

BOARD OF PUBLIC WORKS

OF ROME, GA.

R. A. DENNY, Chairman.

W. M. WILSON, Supervising Engineer.

Brick Dormitory

NOTICE TO CONTRACTORS.

Sealed bids will be received at the office of the architect until noon February 15, 1912, for the erection of a brick dormitory for the State Normal College at Florence, Ala. Plans and specifications may be had from Dr. James K. Powers, president, Florence, Ala., or from the architect, Frank Lockwood, Montgomery, Ala. The right to reject any or all bids is reserved.

Bids or proposals are to be directed to Hon. W. W. Lavender, chairman of the building committee, care of

FRANK LOCKWOOD,

Montgomery, Alabama.

Construction of Drainage Canals

Sealed proposals for the construction of drainage canals in the Moseley Creek Drainage District, near Dover, N. C., will be received by the Drainage Commissioners of said district at Dover, N. C., up to 12 o'clock M. February 16, 1912, and at that time they will be publicly opened and read. Each proposal shall be enclosed in a sealed envelope and addressed to the Chairman of the Board of Drainage Commissioners of the Moseley Creek Drainage District, Dover, N. C., and endorsed "Proposal for Constructing Drainage Canals."

Each proposal shall be accompanied by a certified check drawn payable to the order of the Chairman of the Board of Drainage Commissioners, in the amount of one thousand dollars (\$1000); this check to be an evidence of the good faith of the bidder, and to be held as liquidated damages in case the award is made and the contract and bond are not entered into promptly. Checks of unsuccessful bidders will be returned as soon as the award is made.

Specifications and blank forms of proposal will be furnished upon application, and a full set of maps, plans and profiles may be seen at the office of the Drainage Commissioners, or at the office of the Engineer to the Board of Commissioners at New Bern, N. C.

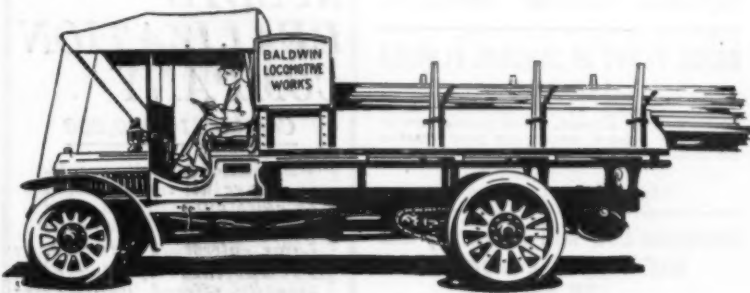
The approximate length of these canals is 14 miles, and the approximate yardage to be excavated is 415,000.

The right is reserved to reject any and all bids.

G. V. RICHARDSON,

Chmn. Bd. Commissioners.

R. R. EAGLE, Engineer.



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You cannot afford to settle your transportation problem without taking into consideration this organization which offers:

The only gasoline trucks that have been tested by actual service for 12 to 17 years—long enough to prove that they warrant their initial expense.

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Care Manufacturers Record.

Complete Saw Mill Plant, Dry Kiln and Logging Equipment FOR SALE

Mill has a daily capacity of 25,000 feet. Logging outfit consists of Locomotive, three and one-half miles of tramroad and six log trucks. Eighteen to twenty million feet of choice Pine timber, well blocked. Mill located about 35 miles south of Savannah, on the Seaboard Air Line Railway. Fifteen to twenty million feet additional timber can be had in easy reach of this plant. For full particulars address

ALBERT FENDIG & CO., Brunswick, Ga.

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One three-story modern Otis freight elevator with Westinghouse 7½ H. P. motor, alternating current, 220-volt, 3-phase, 60-cycle. In use less than two years.

CAPITAL CITY CHAIR CO.,
172 Marietta St., Atlanta, Ga.

These Advertisements Too Late for Regular Alphabetical Index

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COMPLETE SAW MILL PROPERTY FOR SALE

Sawmill property at Ford River, Mich., consisting of three-band-saw mill, shingle mill, tie and post mill, lath mill, docks and trams, blacksmith shop and machine shop all stocked with tools, large store and office building, large boarding-house, large barns, sixty-three houses, lands, etc., all of which will be sold at a bargain. Apply to

THE I. STEPHENSON COMPANY,
Wells, Delta County, Mich.

ASSETS REALIZATION COMPANY

Capital \$10,000,000

Will loan on security requiring special investigation or close supervision, and not available for bank loans. Large enterprises financed. Prompt investigation of security offered, whatever its character or location.

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First National Bank Building

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We want from one to four thousand tons of fifty-six-pound steel rebar rails on lease from three to five years, with privilege of buying during that time, and with agreement to buy at end of that period. We will pay very liberal rental on rail. We have a good proposition. Address

J. A. WILLIAMS, Bamberg, S. C.

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1200 acres of land owned by an estate can be had at a price that will allow purchaser to make a snug fortune. Now platted into townsite and five-acre tracts. Has railroad, three macadamized roads and deep water front. Large steel mill located on adjoining tract. Transaction will involve about \$150,000. As one of the owners is interested in the North, it is possible that a small amount of good interest-paying property might be taken in trade. Reasonable terms can be had on balance.

If interested, write or wire

ROY B. NICHOLS, Houston, Texas.
Reference: Houston Natl. Exchange Bank.

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Our president, Mr. B. M. Yeager, has given years of study and investigation to this section and is familiar with every phase of the situation.

If you are interested in Southern Investments, write us.

SOUTHERN REALTY CO.

BOX 281,

MARLINTON, W. VA.

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Large tract land with valuable seam of coal under every acre. Mining engineers estimate 21,000,000 tons.

THEODOR G. LURMAN,

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VALUABLE PROPERTY FOR SALE

By virtue of a decree of the Superior Court of Clay County, North Carolina, in the case of Stocks vs. Isbell Corundum Company, the property of the Isbell Corundum Company will be sold at the Courthouse door in Hayesville, Clay County, North Carolina, on the first Monday in March, 1912, at public auction to the highest bidder, subject to confirmation by the court. The property consists of 800 acres valuable timber land in Clay County, North Carolina, and on the property is a valuable deposit of high-grade corundum. There is also on the property a large building filled with machinery already set up for cleaning corundum and a large engine and boiler little used. Property may be sold as a whole or in parcels to suit purchasers. Terms cash. For further information address Edmund B. Norvell, Murphy, N. C., or F. S. Johnston, Franklin, N. C.

This 21st December, 1911.

F. S. JOHNSTON,
EDMUND B. NORVELL,
Commissioners.

CAPITAL WANTED

PARTIES holding an option on 375 acres of land, where there are strong indications of oil, would like to correspond with capitalists to aid in development of same. Experts declare that prospect is good for oil. Address "Oil," care Manufacturers Record.

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WANTED—A competent Roofing Salesman widely acquainted in Southern and Southwestern territories and thoroughly familiar with the sale of Asphalt Roofings and Coal Tar Products. Inexperienced applicants are not desired.

Address, "ASTAR"

Care of Manufacturers Record.

Complete Planing Mill Plant FOR SALE

ON FEBRUARY 20, 1912

Located at Lillington, N. C., on Raleigh & Southport Railroad; 15 acres land; main building, two drykilns, boiler building, three tenement-houses, two planers. Capacity, 15,000 feet daily; ready to operate. Terms sale, cash. Date sale, February 20, 1912. Ten per cent. deposit required successful bidder. Private bids considered between now and sale.

E. G. DAVIS, Trustee,
Fayetteville, N. C.

Voltage Regulator Wanted

for 100 K. W., 220 V. alternator, with direct connected exciter.

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Part II of Manufacturers Record February 22d

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One 20"x24"x13 1/2"x20" Norwalk Compressor. One 13"x12" Ball Engine. One 15"x14" Ball Engine. One 20"x48" Corliss Engine. One 13"x16" Center-Crank Slide-Valve Engine. One 12 1/2"x16" Hoisting Engine, double drums 54" diameter. One 7"x10" D. C. Hoisting Engine and Boller. Three 12"x18" Double-Drum Hoisting Engines and Bollers. One 6 1/4"x10" Double-Drum Hoisting Engine and Boller. One Deane 12 and 20"x10 1/2"x12" Duplex Piston Pattern Pump.

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12"x14" Horizontal Tubular Boiler, 120 lbs.
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72"x20" Horizontal Tubular Boiler, 100 lbs.
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90"x16" Internally Fired Marine Boiler, 95 lbs.
18 1/2"-8 1/2" Worthington Duplex Pump.
14-8 1/2"-12 Canton-Hughes Duplex Pump.
No. 3 Style "B" Crusher.
14-ton Kelly-Springfield Road Roller.
50 H. P. Fairbanks-Morse Gasoline Engine.
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Four 100 H. P. Portable Return Flue Boilers. 12"x15" Erie City Engine. 12"x16" Birmingham Engine. 18"x22" H. S. & G. Engine. R. Hand Knife Grinder. 18" Outside Molder.

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24" x 12" four-side
FAY ENDLESS BED PLANER
In condition to run immediately.
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Let us give you details on any of the following items, which we have in stock in Philadelphia, ready for delivery.

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1 30"x60" "Fishkill," girder frame, R. H. \$2500
1 24"x56" "Watts-Campbell," girder frame, L. H. 1800
1 20"x48" "Harris," girder frame, L. H. 1450
1 18"x32" "Naylor," girder frame, R. H. 1550
1 16"x42" "Ohio," heavy duty, L. H. 1250
1 14"x36" "Frick," girder frame, R. H. 750
1 12"x24" "Whitehall," girder frame, R. H. 650
1 9"x24" "Cooper," girder frame, L. H. 500

AUTOMATIC ENGINES
1 27"x18" "Armington & Sims," C. C. 1250
1 16 1/2"x16" "Weston," C. C. 550
1 13"x12" "Erie Ball," C. C. 350
1 12"x14" "Atlas," C. C. 300
1 10"x12" "Atlas," C. C. 225
1 10"x10" "Westinghouse," C. C. 250

HORIZONTAL SLIDE VALVE ENGINES
1 16"x18" "Erie City," S. C. 500
1 15"x16" "Nagle," C. C. 400
1 10"x12" "Nagle," C. C. 150
1 10"x10" "Metropolitan," S. C. 160
1 8 1/2"x11" "Farquhar," Ajax, C. C. 140

BOILERS
1 250 H. P. "Helme," water tube. 1250
3 72"x18" "Penna. Boiler Works," return tubular, each. 500
2 72"x18" "C. & G. Cooper," return tubular, each. 500
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20 in. x 8 ft. Lodge & Shipley, Q. C. G.
20 in. x 10 ft. Lodge & Shipley, Q. C. G.
24 in. x 8 ft. Lodge & Shipley, Q. C. G.
24 in. x 10 ft. Lodge & Shipley, Q. C. G.
27 in. x 10 ft. Lodge & Shipley, Q. C. G.
36 in. x 12 ft. Lodge & Shipley, Q. C. G.
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SPECIAL LATHES
24 in. x 7 ft. Lodge & Shipley Chucking Lathe.
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No. 3 Nutter-Barnes Cold Saw.
Franklin Cold Saw, 3 1/2 in. capacity.
Globe Power Hack Saw, 8 in. capacity.

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Whitton Centering Machine.
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Write for complete description with prices of machines in which you are interested.

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Prices Very Attractive

One 1910 Chalmers Detroit, Model 40, Pony tonneau. This car has not had one full year's use, and is in splendid condition, tires and all. Price \$1000.

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Ready to develop 150 H. P. without a dollar for repairs. Price \$125. Worth \$400.
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1 1/2" Putnam, compound rest, P. C. F.
1 1/2" Flatner, compound rest, P. C. F.
1 1/2" Prentice Bros., compound rest, P. C. F.
1 1/2" Reed, compound rest, taper and turret.
1 1/2" Lodge & Shipley, compound rest.
1 1/2" Prentiss, compound rest, P. C. F.
2 1/2" Pratt & Whitney, compound rest.
1 1/2" Powell, compound rest, P. C. F.
1 1/2" Reed, high speed.
2 1/2" Pratt & Whitney, C. R., P. C. F.
1 1/2" Putnam, C. R., P. C. F.
1 1/2" Gleason, compound rest, taper.
1 1/2" Pond, C. R., P. C. F.
1 1/2" Bement-Miles, C. R., triple geared.
1 1/2" Reed, compound rest, P. C. F.
1 1/2" Newark, triple geared, C. R., P. C. F.
1 1/2" Fitchburg, T. G., C. R., P. C. F.
1 1/2" Fitchburg, C. R.
1 1/2" Bement, compound rest, T. G.

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1 1/2" Jones & Lamson, flat turret.
1 1/2" Bardner & Oliver, friction head.
No. 2 1/2" Warner & Swasey, wire feed.
No. 1 Garvin, wire feed, friction head.
No. 1 Garvin, wire feed.
1 1/2" National Acme, automatic.
1 1/2" Gridley, automatic.
No. 6 Brown & Sharpe, friction head.
No. 6 Warner & Swasey, wire feed.
1 1/2" Smur & Kamen, wire feed.
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1 1/2" Pearson, wire feed.
1 1/2" Pratt & Whitney, screw shaver.

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No. 4 Becker, small plain.
No. 3 Cincinnati, universal.
No. 1 Le Blonde, plain, back gears.

No. 2 Pratt & Whitney, Lincoln pattern.
No. 3 Brown & Sharpe, plain, all feeds.
No. 1 Brown & Sharpe, old-style universal.
No. 3 Cincinnati, plain.
No. 12 Brown & Sharpe, manufacturers.

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26" Lodge & Davis, sliding head.
25" Barnes, sliding head.
36" Blackford, radial.
No. 25 Foote-Bart, high speed.
F 12" Baker Bros.
10-spindle Gardam, adjustable.
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24" Hamilton, sliding head.
3-spindle Barnes, gang.
7-spindle Slate, bedstead.

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9" Gould & Eberhardt.
20" and 24" Hendey, friction.
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Grinder, Sellers, universal tool.
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Planer, 30x30x10 Gleason, 1 head.
Planer, 36x36x12 Betts, 4 heads.
Planer, 48x48x3 Farrell, 1 head.
Planer, 48x48x15 Pond, 3 heads.
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Boring Mill, 50", Niles.
Boring Mill, No. 2 Betts, horizontal.
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Hammer, 300 lbs., standard, automatic.
Hammer, 50 lbs. Bradley, compact.
Hammer, 1000 lbs., Pratt & Whitney, drop.
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Two (2) 18"x34"x48" Tandem Compound Greeno, 150 lbs. steam.
25"x48" Wetherill Corliss, 150 lbs. steam, extra heavy.
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18"x36" Hamilton Corliss.
One (1) each 14"x16", 16"x18", 14"x28" and 12"x24" Buckeye.
One (1) 15"x16" New York Safety Center-Crank.
One (1) 9"x15"x3" Westinghouse Automatic Compound.
Large assortment of Slide-Valve Engines, all sizes.

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18"x18"x24" Ingersoll-Sergeant.
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- 1 Hot Band Saws, various sizes.
- 1 Hot Shaper Knives, various sizes.
- 1 Band-Saw Filing Device.
- 1 New Britain Saw Set.
- 1 Set 2 1/2" Steel Dies.
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- 1 22x48 Hamilton.
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- 1 24x42 Allis.
- 1 28x54 Hamilton.
- Automatic Engines of all sizes.
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A complete outfit for a Bark or Wood Extract Factory, consisting of one 100 H. P. Automatic Engine; two Boilers, 100 H. P. each; Carriage Chipper, Williams Pulverizer, Vacuum Pan, Pumps, Belting, Pulleys, Shafting, all necessary Piping, 1000 feet 5, 6 and 7-inch Pipe, Wagon and Barrel Scales. Has been used only a short time.

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Three 72"x20" Horizontal Return Tubular, 15 H. P. each, 125 lbs. steam.
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One 150 H. P. Manning Vertical, 125 lbs. steam.
Large stock of vertical types, all sizes.

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30"x48" Watts-Campbell Corliss.
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20"x42" Greene.
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Large stock of smaller sizes; also Automatic and Plain Slide-Valve, Vertical and Horizontal.

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48"x20" Triple Geared Lathe, raising blocks to 55".
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20"x10" Rahn-Carpenter Gap Lathe.
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16"x8" Bradford.
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About 20 Lincoln Type Milling Machines.

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Four-Wheel, Saddle Tank, 32-ton, 14"x24" cylinder locomotive, first-class condition.
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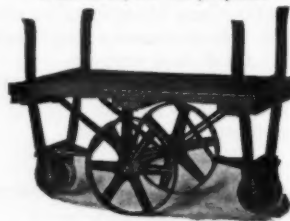
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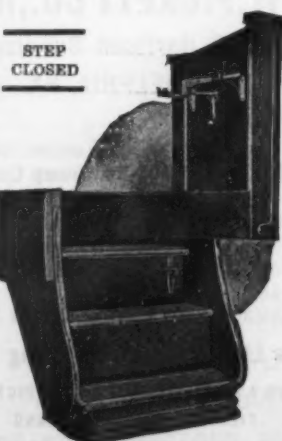
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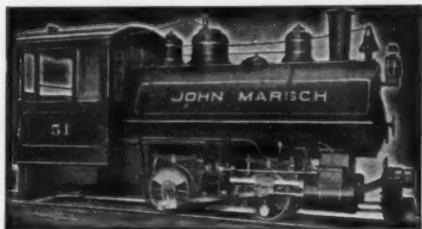
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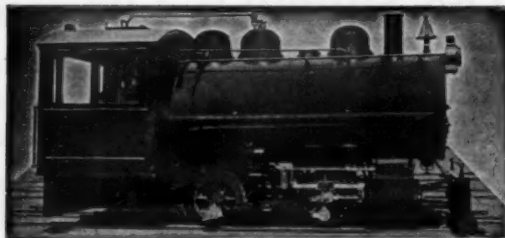
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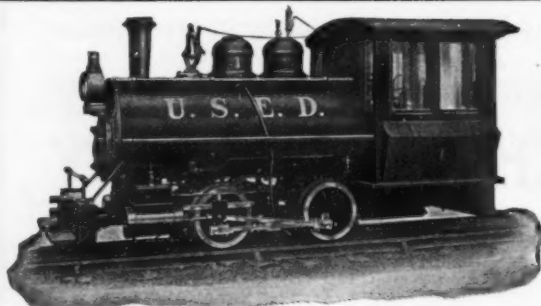
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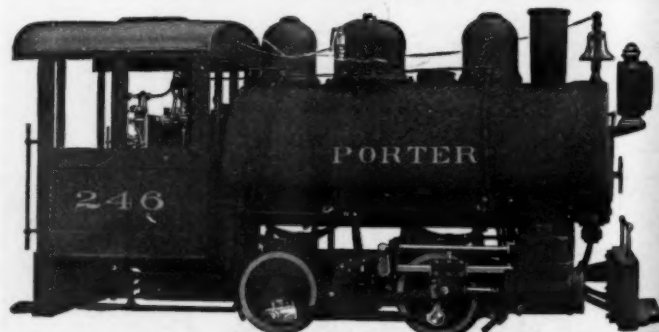
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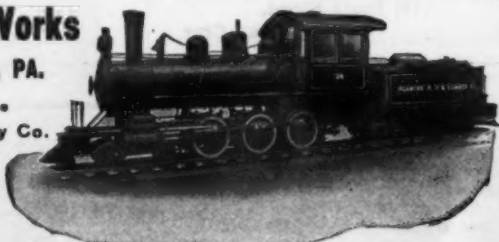
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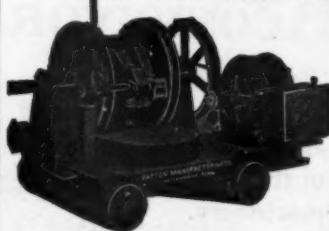
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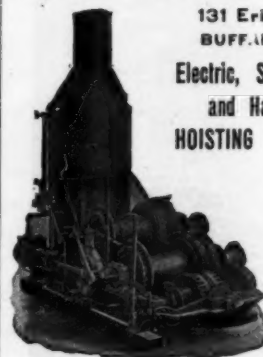


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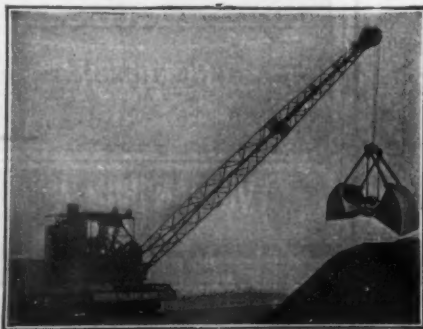
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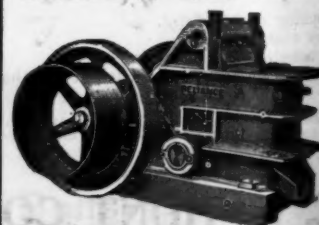
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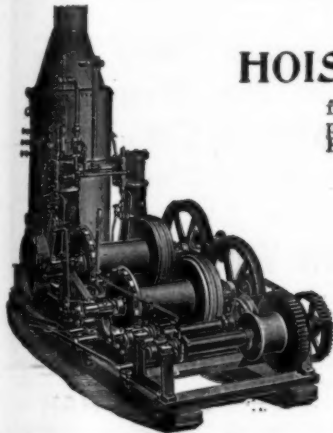
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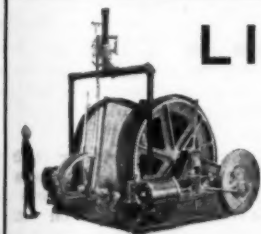
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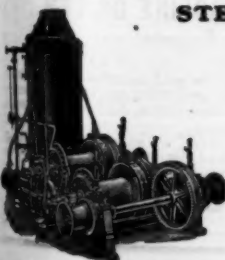
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THE greatest convenience about Hayward Buckets is that they are so remarkably efficient in so many different contracting problems.

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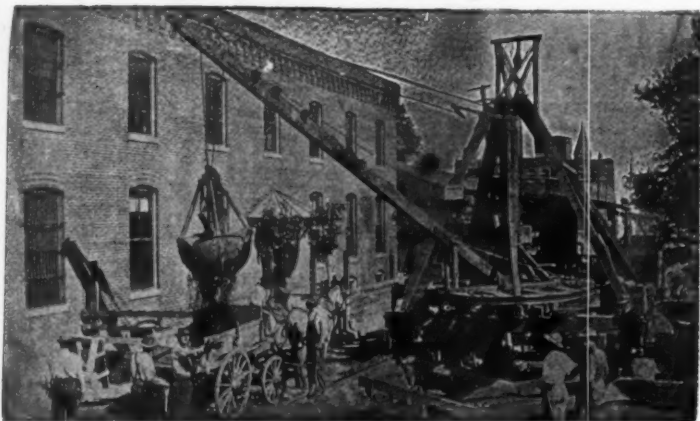


Illustration A 955

HAYWARD ORANGE PEEL BUCKET

as shown in illustration (A 955) excavating a sewer trench and loading the excavated material directly into wagons. This is an incidental convenience on an ordinary job, but the point is that these buckets have such incidental conveniences in all work and at all times. For instance, on this job, it is the excellent precision with which the Bucket works that allows this convenience. There was absolutely no danger to men or animals. A traveling derrick with a bull wheel swing was used. In Illustration A 931 a

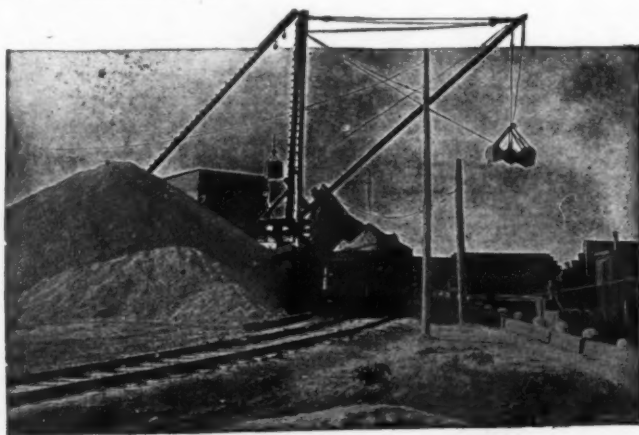


Illustration A 931

HAYWARD CLAM SHELL BUCKET

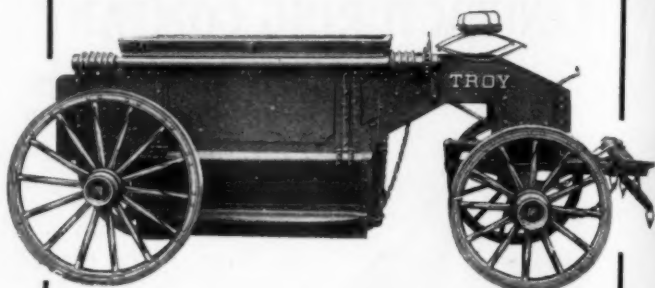
is shown in one of its many uses. It is here rehandling crushed stone from a car to the stock pile, and is operated by an ordinary hoisting engine, equipped with a Hayward Counter weight drum.

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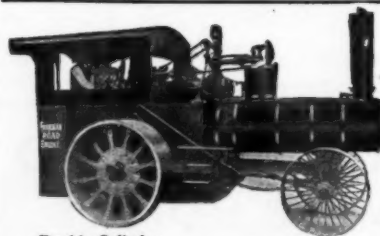
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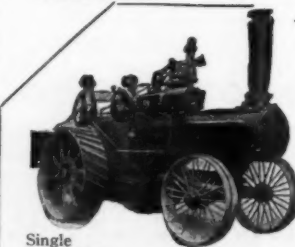
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For all Road Hauling, Plowing, Grading and Other Heavy Draft Work—nothing equals The Farquhar's rugged Constitution and tremendous efficiency.

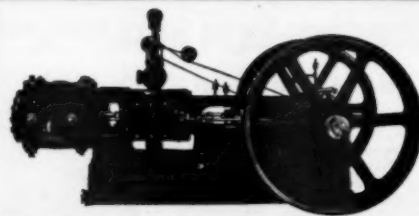
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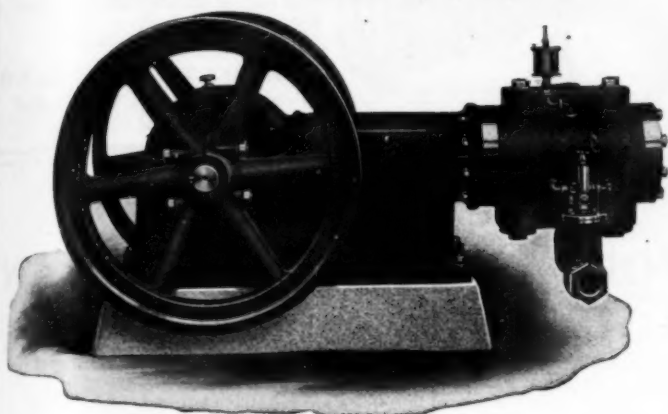
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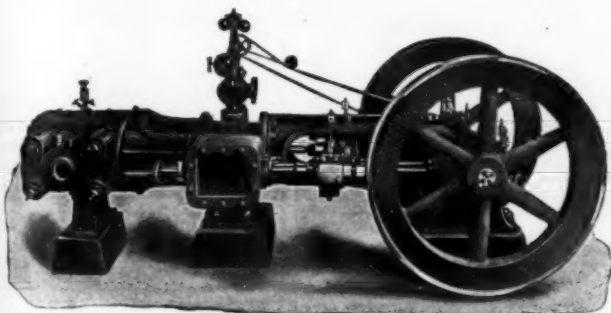
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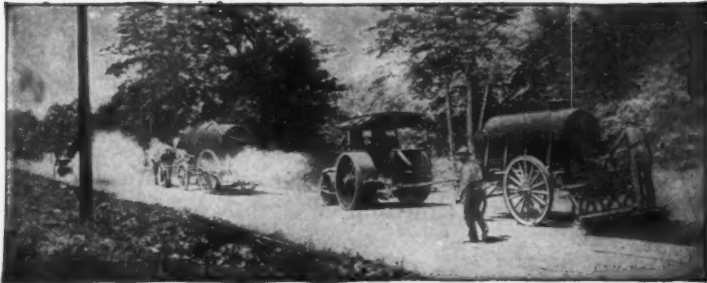
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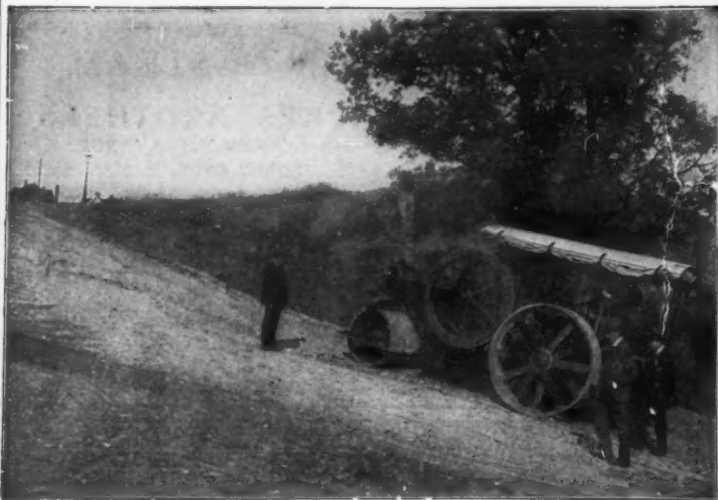
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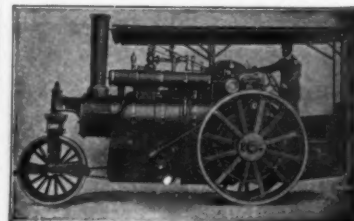
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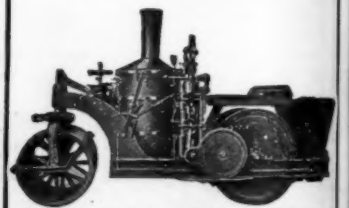
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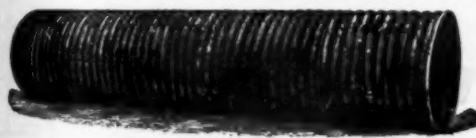
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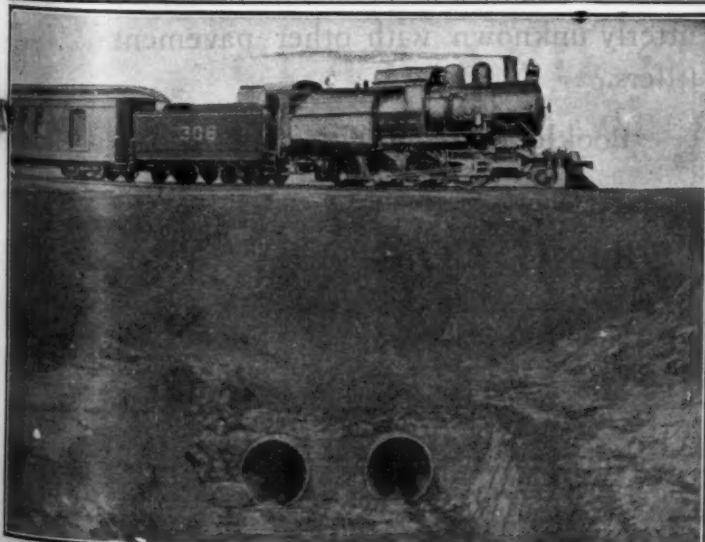
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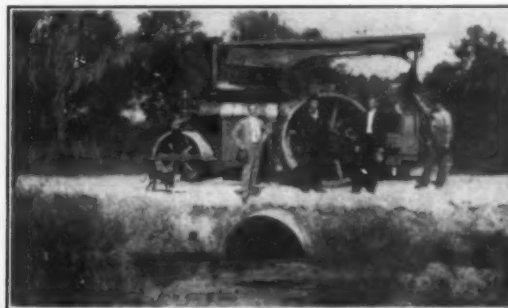
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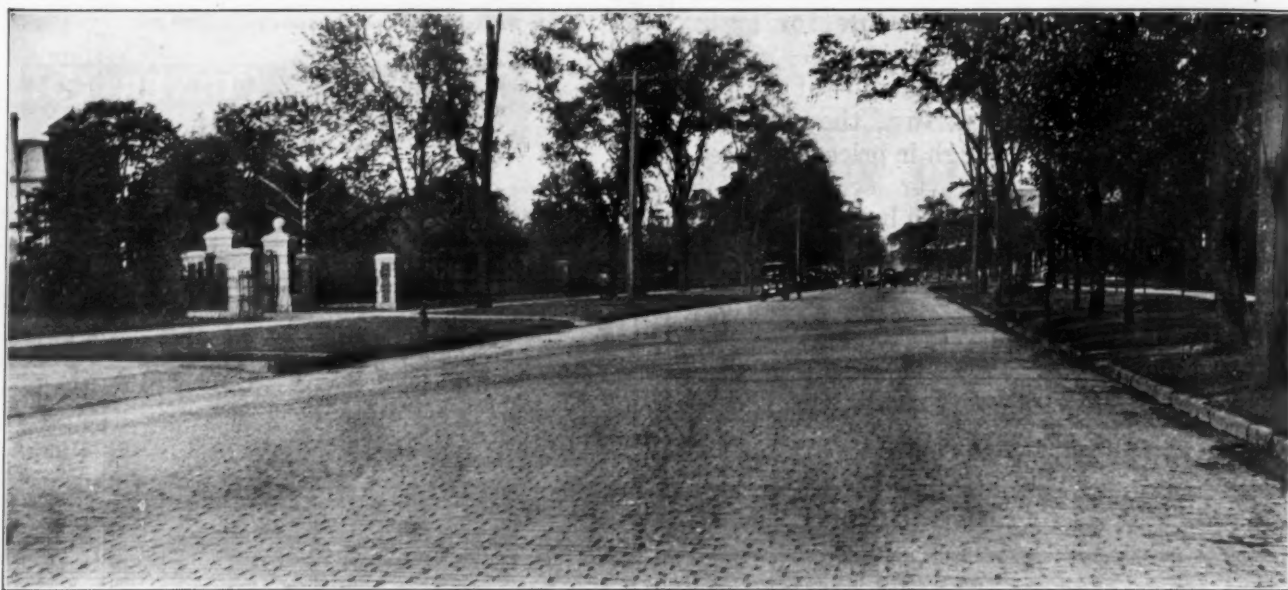
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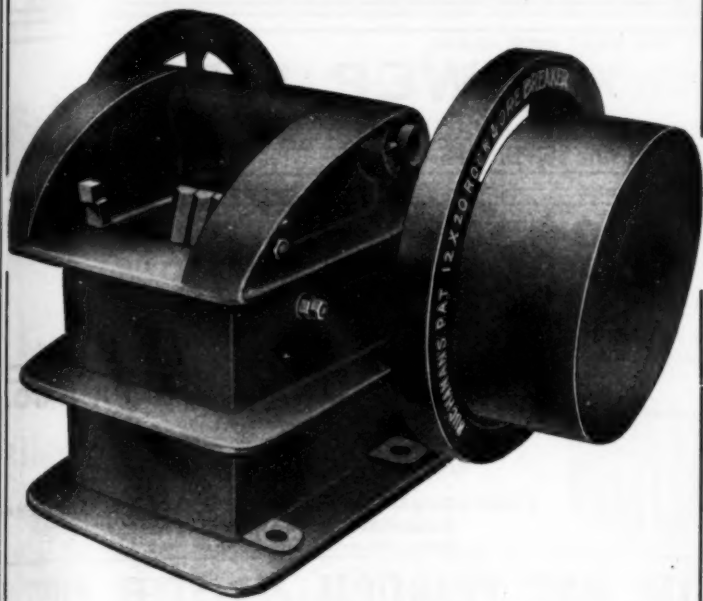
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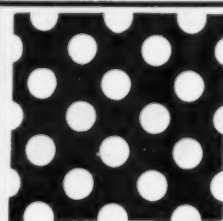
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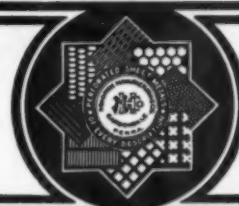
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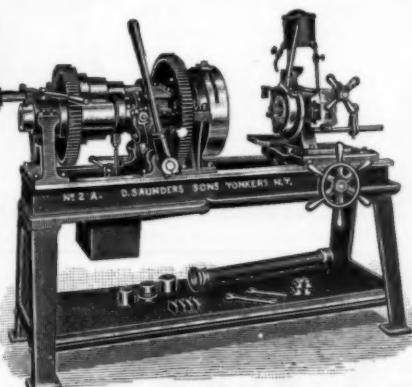
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tells
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Don't tear up streets hunting pipe

It's expensive and
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The D. B. M. Wireless
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Fig. 27.

It will be a decided advantage for you to get
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Kennedy Valves

If you know something about them, we want
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Fig. 101.

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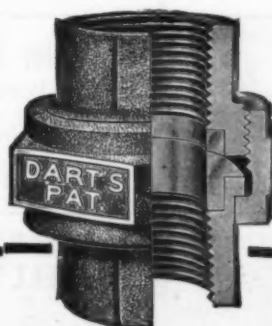
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High Pressure Work
Manufactured by
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N. Y. Office, Singer Bldg.

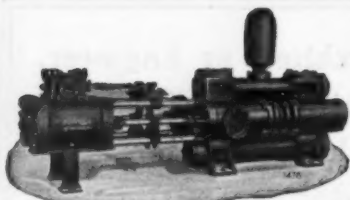
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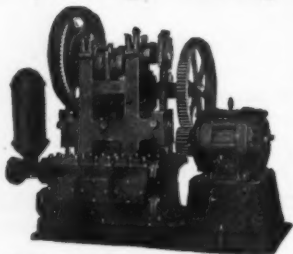
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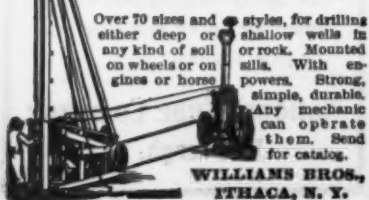
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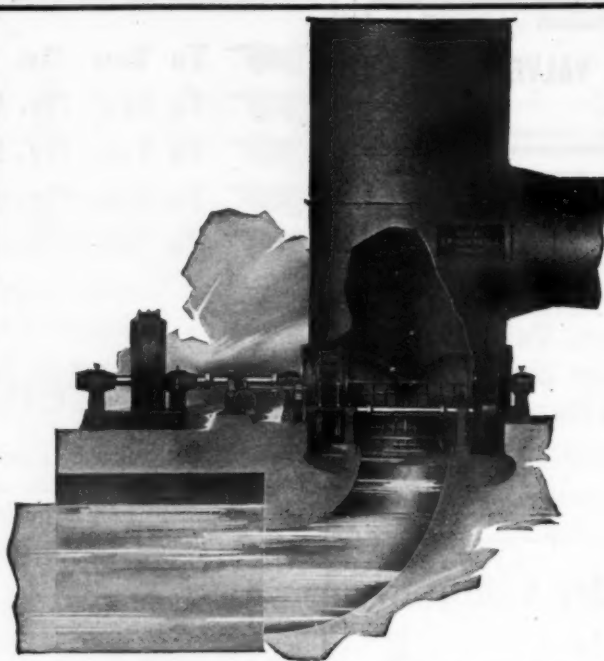
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| Gateage. | Head. | R. P. M. | Cu. ft. per sec. | H. P. | Efficiency. |
|---------------|-------|----------|------------------|-------|-------------|
| Full. | 15.00 | 144 | 173 | 241 | 82.03% |
| $\frac{3}{4}$ | 15.04 | 138 | 155 | 224 | 84.55% |
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| $\frac{1}{4}$ | 15.88 | 131 | 113 | 163 | 80.25% |

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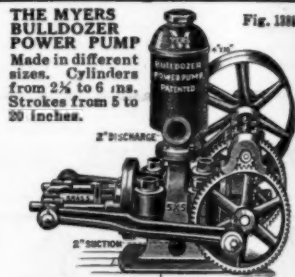
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BULLDOZER
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from 2 1/2 to 6 ins.
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Fig. 1389

THE MYERS BULLDOZER
WORKING HEADS, PUMPING
JACKS, CYLINDERS, ETC.



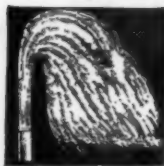
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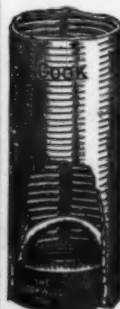
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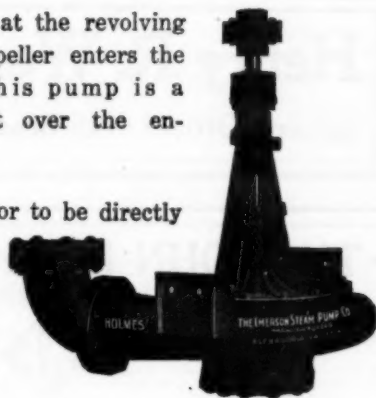
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(HYDRAULICALLY BALANCED)

Prevents rapid wear at the revolving joint, where the impeller enters the suction opening. This pump is a marked improvement over the enclosed-impeller type.

Made for belt drive or to be directly connected to motors, engines or turbines. Adapted to all users. By using this type you get very high efficiency, which remains high, at low cost.



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Cameron Vertical Plunger Sinking Pumps

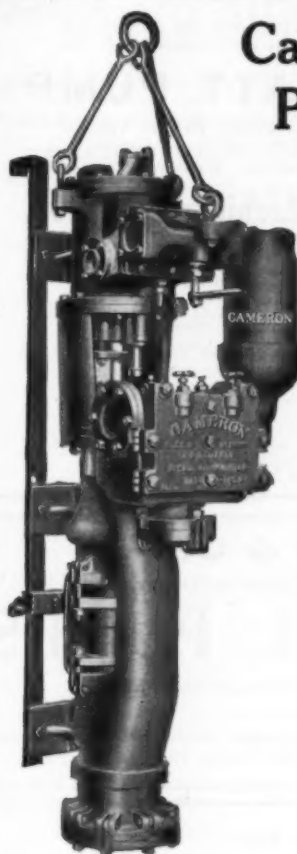
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FIG 3000—No. 8

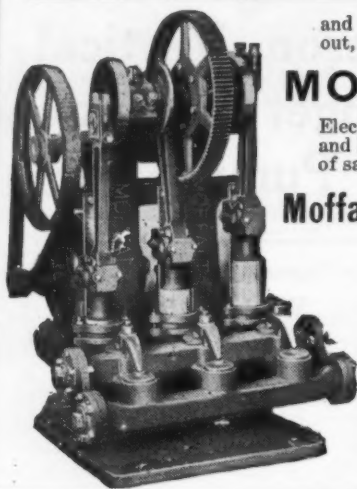
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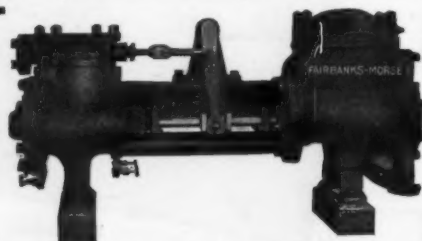
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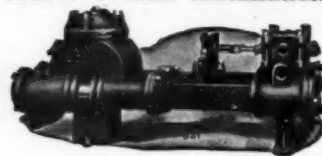
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ALABAMA
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Necessity

It is necessity which makes all of America's industries possible. The needs of mankind create a demand for numberless commodities, and thus factories are enabled to flourish. The manufacturer must seek the location which is most favorable to the operation of his plant, because competition makes this necessary. Following are a few reasons why fruit canneries are a necessity of the Southwest and why Texas City is the most favorable location for such an industry.

It is a well known fact that climatic conditions of Southwest Texas are very conducive to the successful cultivation of a great variety of fruits. It is a fact, equally well known, that the process of decay sets in on the ripened fruit a good deal quicker here than in the colder climate of the North. As a result, bushels upon bushels and tons upon tons of fruit are annually lost to mankind, all or nearly all of which might be saved by canning.

Two hundred thousand people are annually pouring into the State of Texas. The greater number of these are locating in the Gulf Coast district in the vicinity of Texas City. The development of this section has, as a result, been so marked and rapid as to render the few factories located here utterly inadequate to meet the growing demands. That is why we say

Fruit Canneries

are a necessity of the Southwest and that Texas City is the most favorable spot in the Texas Gulf Coast district.

A further reason is that Texas City is located directly in the heart of a rapidly developing fruit section. Thousands of acres are being cut up into five and ten acre tracts and are being set out to fruit trees. Thousands of dollars in freight charges and in the loss resulting from bruised and decayed fruit might be saved to the grower if canneries were on the ground, to say nothing of the saving to consumers if the cost of transportation were eliminated.

Another important proposition is the fact that at Texas City is being installed the finest and most up to date dock, warehouse and Terminal system on the American seaboard. Established steamship lines operating between Mexican and Central and South American points makes it possible to bring in various tropical fruits from these countries at the lowest possible cost, and the lines to New York, Boston, Baltimore, Liverpool, Havre and Bremen put the cannery in direct communication with the markets of the world.

Full Information Distributed by
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The Eyes of the World Are on Florida

The striking facts and figures shown on these pages from week to week of Florida's remarkable advance in population, in farm land values, in the leading diversified farm crops, in capital invested in factories, and in the value of factory products, all combine to emphasize the wonderful agricultural and industrial activities and possibilities of the State.

This growth, while showing a great percentage of increase in the last decade, has been a steadily expanding one; and when the many large undertakings that are under way in Florida, such as the draining of the Everglades, extension of railroads, etc., are considered, all of which will open up opportunities of even wider magnitude, a still greater development is conservatively predicted in the next ten years.

Prosperity begets prosperity. The momentum of growth swells with an accelerating pace.

"The Call of Florida" has been heard throughout the land. The gain in its population during the last ten years has been merely the advance guards of the pioneers.

For every hundred persons who were even thinking of Florida ten years ago, a thousand persons are now studying the State with a view to making it their home.

A State which is drawing an ever increasing number of health and pleasure seekers, of permanent settlers—some to engage in general agriculture, some in manufactures, some in fruit-growing—oranges, grape fruit or kindred interests; some in trucking, some in dairying, and some in chicken raising—is an ideal land for investigation on the part of those who want

The most perfect all-the-year-round climate to be found in America;

Manufacturing and agricultural advantages of vast and varied extent;

Transportation facilities that are rapidly being extended to meet the ever expanding business of the State.

Florida is the State.

He who investigates it invests in it.

*Full information gladly sent to
those desiring to investigate Florida's
resources for investment and homes.*

Florida East Coast Railway

J. E. INGRAHAM, Vice-President

ST. AUGUSTINE, FLA.

Progressive Cities and a Progressive Railroad

In West Virginia the cities and towns along the Baltimore & Ohio are keenly alive to the advantages they possess by reason of their proximity to the State's varied natural resources.

Individually they work for the development of their respective communities, collectively for the industrial expansion of their State.

This co-operation is reflected by the active interests shown in their strong and aggressive Boards of Trade and Chambers of Commerce.

These commercial organizations are always active in securing new industries, and legitimate ones find ready assistance extended to them.

Back of these bodies are liberal banking institutions to aid them financially, and a railroad that is generous in arranging the proper facilities for handling the product of new plants.

This is the spirit a manufacturer is anxious to find in locating his new industry, because he realizes a live industrial community means the attraction and retention of good labor, steady, substantial growth and satisfactory conditions generally.

This spirit is one of the State's invaluable assets, because when its important resources of coal, timber, natural gas, iron ore, limestone, clay, glass sands, etc., are considered, it is bound to draw to the State substantial interests that will develop along the broadest possible lines.

The Baltimore & Ohio has shown its deep interest in this development and its faith in West Virginia by the large expenditures it has made and is continuing to make for the improvement and extension of its lines in the State, in order to properly provide ample facilities for handling the steadily increasing amount of traffic.

Its works in this direction is evidenced by its construction of new passenger and freight stations, the extension of its lines into new territory, the rearrangement and modernization of its track and equipment, and in every way providing facilities to meet all demands that may be put upon it.

The Baltimore & Ohio, through its Industrial Department, will be pleased to furnish investors, capitalists and manufacturers with full information regarding the opportunities in West Virginia.

Baltimore & Ohio Railroad

W. W. Wood, Industrial Agent

Baltimore, Md.

Complete and Reliable Reports

Covering

Clinchfield Opportunities

Recognizing the value of the resources of the country contiguous to its line, the Clinchfield has determined that the best way in which to present facts regarding these to investors, manufacturers, farmers, home seekers and others, would be through authoritative and specific reports made by men of high standing in their several lines. Such reports, it was felt, would inspire confidence and compel attention. So far the following resources have been reported upon:

Agriculture

George T. Powell of the Agricultural Experts' Association of New York has broadly surveyed the Clinchfield's agricultural opportunities and pointed out its many possibilities for raising various grains, grasses and vegetables, as well as the operation of stock and dairy farms.

Horticulture

Professor Powell has also reported on the peculiar adaptability of this region for fruit growing, especially apples, and in addition the Clinchfield has in its employ trained horticulturists to assist those desiring to engage in this work.

Mineral

Prof. John Jermain Porter, Metallurgical Engineer of the University of Cincinnati, investigated and reported upon the mineral resources in general, and made special reports upon the different kinds of deposits, such as limestone, kaolin, clay, sand, building stone, etc. Charles Catlett, the eminent geologist, has also been engaged in an advisory capacity.

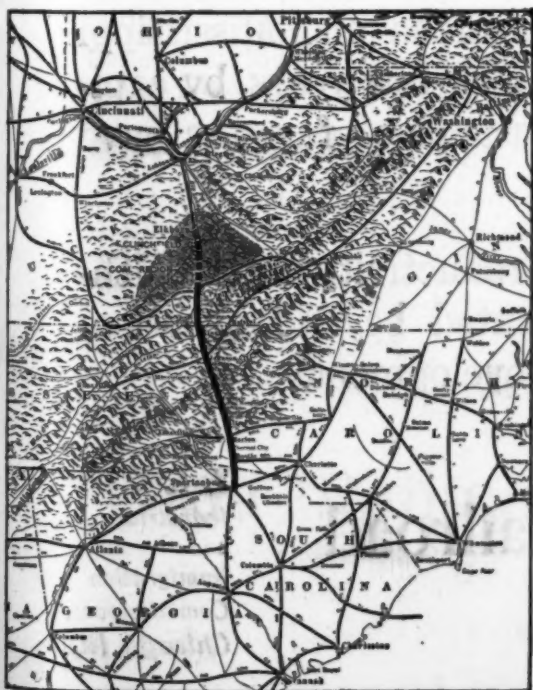
Timber

Expert timber cruisers are continually investigating these resources, and so far have located more than 2,000,000,000 feet of hardwood timber. Being in the heart of the country's future supply of hardwood timber, its value cannot be overestimated in the opportunities offered for the establishment of woodworking plants, etc.

Power

E. McD. Moore, Hydraulic Engineer, is locating and reporting upon water-power development sites in the Clinchfield territory, while the Clinchfield Coal Corporation is producing 2,000,000 tons annually, and steadily increasing, all of which insures cheap power to industries.

These resources, combined with ideal labor and climatic conditions, offer exceptional opportunities to the investor, manufacturer and farmer.



Full information will be gladly sent to those interested. Also a copy of our booklet, "The Land of Opportunities," which gives a broad insight into the opportunities offered in this remarkable country.

Carolina, Clinchfield & Ohio Rwy.

"THE ROAD OF OPPORTUNITY"

J. J. Campion,
V.-P. and Traffic Manager

R. F. Brewer,
Industrial Agent

Johnson City, Tenn.

Four Crops a Year

In Louisiana and Mississippi there are millions of acres of wet prairie lands awaiting the brain and energy of land operators and farmers to transform them into the most productive farm lands in America—lands that will yield four bountiful crops a year.

Formed by the richest soils of the whole Mississippi Valley, brought down for centuries by that river and its tributaries and deposited here by every recurrent flood, these lands constitute the most fertile farming areas in these States, and are surpassed by none in the world in productive capacity.

From such parts already drained it has been conclusively shown that the engineering problems in connection with their reclamation are simple, while the cost of reclamation is comparatively small, running from \$15 to \$20 per acre in small tracts to as low as \$6 to \$8 per acre for large ones.

When drained these wet prairie lands yield abundant crops; they are indeed the richest farm lands known to the world.

They are also adapted to the growth of a wide range of products which by the best transportation facilities can reach local markets as well as all the leading cities of the country.

Thousands of acres of these lands in Louisiana and Mississippi have been purchased and drained in the last few years by capitalists from the North and West, and thousands of farmers have located on them.

The start has been made. The fertility, productivity and healthfulness of the lands have been demonstrated beyond question. There are still millions of acres awaiting development.

We have a number of interesting pamphlets showing the extent of these lands and what has been accomplished on them. Send for them.

Illinois Central Railroad

Chicago, Ill.

*J. C. Clair,
Industrial
and
Immigration
Commissioner,
Chicago, Ill.*

Tidewater Virginia's Unequaled Rail and Water Shipping Facilities

The complete and extensive transportation facilities both rail and water that are enjoyed by that section of Tidewater Virginia in which the cities of Richmond, Norfolk, Portsmouth, Petersburg and Suffolk are located should alone prove a compelling inducement for manufacturers to establish their industries in this territory.

Think of the fact that there are eight big railroad lines—the Southern Railway, Atlantic Coast Line, Seaboard Air Line, Chesapeake & Ohio, Norfolk & Western, Virginian, Norfolk-Southern and New York, Philadelphia and Norfolk—having their termini here.

These roads have a combined mileage of over 20,000 miles and extend throughout nearly every Southern State, and in addition have direct connection with the leading trunk lines of the country.

What other place can even rival this section with such magnificent and extensive railroad distributing service.

In addition in Tidewater Virginia at Hampton Roads there is one of the world's finest harbors from which ply regularly vessels between this section and not only the leading ports along the Atlantic Seaboard and Gulf Coast of this country, but also the leading ports in every part of the world.

Combining these unsurpassed railroad and water transportation services nowhere can there be found a section so advantageously located to assemble raw materials and to distribute finished products.

Then with these facts in mind consider further that the Southern territory traversed by these railroads abounds in vast supplies of inexhaustible raw materials suitable for nearly every class of manufacture, thus giving added importance to Tidewater Virginia as an ideal site for diversified industries.

No manufacturer or business man can study the advantages with which this section has been endowed by nature and improved by man without recognizing it as a location of wonderful strategic and economic value.

This company's faith in Tidewater Virginia is evidenced by its large investment in the electric railway light and power utilities which it operates in the five leading cities, and in the spirit of encouraging and aiding the development of this territory we will gladly furnish detailed information regarding openings for specific industries and in other ways co-operate with those desiring to study the peculiar and manifold advantages found here.

Virginia Railway and Power Company

RICHMOND

NORFOLK

PETERSBURG

PORTSMOUTH

SUFFOLK

VIRGINIA

CLASSIFIED INDEX OF ARTICLES ADVERTISED

- Abrasive Materials.**
Abrasive Material Co., Philadelphia, Pa.
Carborundum Co., Niagara Falls, N. Y.
Norton Co., Worcester, Mass.
Vitrified Wheel Co., Westfield, Mass.
- Accountants.**
Baltimore Audit Co., Baltimore, Md.
Crusell Audit Co., Atlanta, Ga.
Interstate Audit Co., Washington, D. C.
Neville, Chas., Savannah, Ga.
- Adding Machines.**
Adder Machine Co., Wilkes-Barre, Pa.
Burroughs Adding Machine Co., Detroit, Mich.
- Agents. (Manufacturers.)**
Allon, Herbert F. L., Washington, D. C.
- Agricultural Implements.**
Appomattox Iron Wks. & Sup. Co., Petersburg, Va.
Myers & Bro., F. E., Ashland, O.
- Air Compressors. (Stationary and Portable.)**
Allen, Herbert F. L., Washington, D. C.
American Air Compressor Wks., New York, N. Y.
American Compressor & Pump Co., Baltimore, Md.
Blaisdell Machinery Co., Bradford, Pa.
Chicago Pneumatic Tool Co., Chicago, Ill.
Gardner Governor Co., Quincy, Ill.
General Electric Co., Schenectady, N. Y.
Ingersoll-Rand Co., New York, N. Y.
Union Steam Pump Co., Battle Creek, Mich.
- Air Motors.**
Ingersoll-Rand Co., New York, N. Y.
- Aluminum Products. (Bars, Sheets, Tubes, etc.)**
Aluminum Company of America, Pittsburgh, Pa.
- Aluminum Wheels.**
Norton Company, Worcester, Mass.
- Annealing Boxes.**
Wilford Iron Works Co., Millard F., Philadelphia, Pa.
- Anti-Friction Metals.**
Bailey Leiby Co., Charleston, S. C.
Dodge Manufacturing Co., Milwaukee, Ind.
Gilbert & Sons Brass Fdry. Co., St. Louis, Mo.
Phosphor-Bronze Smelting Co., Phila., Pa.
Virginia Railway Supply Co., Norfolk, Va.
- Anti-Rail Creepers.**
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- Architects.**
Cohn, Shepherd & Peale, Richmond, Va.
Cohn & Cohn, Richmond, Va.
Lockwood, Greene & Co., Boston, Mass.
McLaughlin & Johnson, Lynchburg, Va.
Milburn, Heister & Co., Washington, D. C.
Nichols, Charles E., New York, N. Y.
Northup, Willard C., Winston-Salem, N. C.
Pettit & Cave, Danville, Va.
Shand & Lafaye, Columbia, S. C.
Sirrinc, J. E., Greenville, S. C.
- Architects' Supplies.**
Keuffel & Esser, Hoboken, N. J.
Starrett Co., L. S., Athol, Mass.
Weber & Co., F., Philadelphia, Pa.
- Architectural Iron and Sheet Metal Work.**
Bolles Iron & Wire Works, J. E., Detroit, Mich.
Cheesapeake Iron Works, Baltimore, Md.
Des Moines Bridge & Iron Co., Des Moines, Ia.
Schreiber & Sons Co., The L., Cincinnati, O.
Snead Architectural Iron Works, Louisville, Ky.
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- Art Glass and Prisms. (Set in Zinc and Copper.)**
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Carolina Portland Cement Co., Charleston, S. C.
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- Asphalt.**
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- Asphalt Melters.**
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- Asphalt Roofing and Siding. (Bird Sand and Chipped Slate Surface.)**
Bermingham & Seaman Co., Chicago, Ill.
- Automobiles. (Motor Trucks.)**
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- Automobiles. (Passenger.)**
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- Axles. (See Car Wheels, Axles and Trucks.)**
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- Badges. (Hat and Breast, Electric and Steam Road, Police and Fire Dept.)**
American Railway Supply Co., New York, N. Y.
- Bakers' Machinery.**
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- Bankers and Brokers.**
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Electric Bond & Share Co., New York, N. Y.
Glenn, W. S., Spartanburg, S. C.
Guaranty State Bank & Trust Co., Dallas, Tex.
Halsey & Co., N. W., New York, N. Y.
Linsam & Co., F. J., New York, N. Y.
Mercantile Trust & Deposit Co., Baltimore, Md.
New First National Bank, Columbus, O.
New York Bond & Share Co., New York, N. Y.
Nuveen & Co., John, Chicago, Ill.
Savannah Bank & Trust Co., Savannah, Ga.
Southern States Development Co., New York, N. Y.
Violet & Co., Atwood, New York, N. Y.
- Banks.**
First National Bank, Baltimore, Md.
First Nat'l Bank of Key West, Fla.
First National Bank, Richmond, Va.
Guaranty State Bank & Trust Co., Dallas, Tex.
Merchants National Bank, Baltimore, Md.
New First National Bank, Columbus, O.
National Exchange Bank, Baltimore, Md.
Savannah Bank & Trust Co., Savannah, Ga.
- Bank and Office Railings and Grilles. (Iron.)**
Bolles Iron & Wire Works, J. E., Detroit, Mich.
Buckeye Wire & Iron Works Co., Columbus, O.
Chattanooga Iron & Wire Wks., Chattanooga, Tenn.
Cheesapeake Iron Works, Baltimore, Md.
Cincinnati Mfg. Co., Cincinnati, O.
Dow Wire Works, Louisville, Ky.
Dufur & Co., Baltimore, Md.
Dufur, Baggett & Co., Baltimore, Md.
Meyers Mfg. Co., F. J., Hamilton, O.
Ohio Elevator & Machine Co., The, Columbus, O.
- Bar Benders. (For Bending Reinforcing Bars.)**
Hinman & Co., D. A., Sandwich, Ill.
- Bar Iron. (Refined and Galvanized.)**
Carnegie Steel Co., Pittsburgh, Pa.
Westtown Plate Washer Co., Philadelphia, Pa.
- Bars, Wire, Wire Fabric, etc. (Steel for Concrete-Steel Construction.)**
American Steel & Wire Co., Chicago, Ill.
Cincinnati Iron & Steel Co., Cincinnati, O.
Concrete-Steel Co., The, New York, N. Y.
Concrete Steel Engineering Co., New York, N. Y.
Franklin Steel Co., Franklin, Pa.
Hoffman & Co., R. C., Baltimore, Md.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
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- Bearings. (Ball.)**
Brets Co., J. S., New York, N. Y.
Hyatt Roller Bearing Co., Newark, N. J.
Standard Roller Bearing Co., Philadelphia, Pa.
- Bearings. (Brass Journal.)**
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- Bearings. (Roller.)**
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Standard Roller Bearing Co., Philadelphia, Pa.
- Bells. (Call.)**
Holtzer-Cabot Electric Co., Boston, Mass.
- Bells and Gongs.**
National Tube Co., Pittsburgh, Pa.
Western Electric Co., New York, N. Y.
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Bailey Leiby Co., Charleston, S. C.
Baltimore Belting Co., Baltimore, Md.
Cameron & Barkley Co., Charleston, S. C.
Cheesapeake Belting Co., Baltimore, Md.
Diamond Rubber Co., Akron, O.
Dund Oak Belting Co., Inc., Baltimore, Md.
Gandy Belting, Baltimore, Md.
Ladew, Estate Edward, Glen Cove, N. Y.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Ward-Hecke Co., Washington, D. C.
Williams & Sons, L. B., Dover, N. H.
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Bartlett & Snow Co., C. O., Cleveland, O.
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Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago House Wrecking Co., Chicago, Ill.
Cole Mfg. Co., B. D., Newnan, Ga.
Cooper Co., C. G., Mt. Vernon, O.
Gem City Boiler Co., Dayton, O.
Gibbs Machinery Co., Columbus, S. C.
Hartley Boiler Works, Montgomery, Ala.
Heine Safety Boiler Co., St. Louis, Mo.
Keeler Co., E., Williamsport, Pa.
Lookout Boiler & Mfg. Co., Chattanooga, Tenn.
Lombard Iron Works, Augusta, Ga.
Mecklenburg Iron Works, Charlotte, N. C.
Murray Iron Works Co., Burlington, Ia.
Oil City Boiler Co., Oil City, Pa.
Petroleum Iron Works Co., Sharon, Pa.
Phoenix Iron Works Co., Meadville, Pa.
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Ruemell-Dawley Mfg. Co., St. Louis, Mo.
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Smith-Courtney Co., Richmond, Va.
Southern Engine & Boiler Works, Jackson, Tenn.
Union Iron Works Co., Selma, Ala.
Valk & Murdock Iron Works, Charleston, S. C.
Vogt Machine Co., Henry, Louisville, Ky.
Walsh & Weldner Boiler Co., Chattanooga, Tenn.
- Boiler Setting.**
Harblson-Walker Refractories Co., Pittsburgh, Pa.
- Boiler Tubes. (See Tubes, Boiler.)**
- Bolts, Nuts, Rivets, Studs and Washers.**
Milton Mfg. Co., Milton, Pa.
Nictown Plate Washer Co., Philadelphia, Pa.
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- Bottling Outfits.**
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Strickland Machine Co., Richmond, Va.
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Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.
Carolina Portland Cement Co., Charleston, S. C.
Flake & Co., Inc., New York, N. Y.
Hood, B. Mifflin, Atlanta, Ga.
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Oconee Brick & Tile Co., Milledgeville, Ga.
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Sibley Menger Brick & Coal Co., Birmingham, Ala.
Scott Brick Co., Alex. A., Knoxville, Tenn.
- Brick. (Blast Furnace, Coke Oven.)**
Ashland Fire Brick Co., Ashland, Ky.
Hood, B. Mifflin, Atlanta, Ga.
- Brick. (Enamelled.)**
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- Brick. (Fire Clay.)**
Ashland Fire Brick Co., Ashland, Ky.
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.
- Brick & Co., Inc., New York, N. Y.**
- Brick. (Harblson-Walker Refractories Co., Pittsburgh, Pa.)**
- Brick. (Lime.)**
Carlyle Paving Brick Co., Portsmouth, O.
Copeland-Ingalls Shale Brick Co., Birmingham, Ala.
- Brick. (Silica.)**
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Carnell, George, Philadelphia, Pa.
Furnholtz Brick Machinery Co., St. Louis, Mo.
Freese & Co., E. M., Gallon, O.
Gibbs Machinery Co., Columbus, S. C.
Scott-Madden Iron Works, Keokuk, Iowa.
Steele & Sons, J. C., Statesville, N. C.
Taplin-Rice-Clerkin Co., Akron, O.
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- Brick Machinery. (Sand Lime.) (See Sand-Lime Brick Machinery.)**
- Brickwork. (Artistic.)**
Flake & Co., Inc., New York, N. Y.
- Bridges. (Concrete.)**
Concrete Steel Engineering Co., New York, N. Y.
Roanoke Bridge Co., Roanoke, Va.
- Bridges. (Rolling Lift.)**
Scherzer Rolling Lift Bridge Co., Chicago, Ill.
- Bridges.**
American Bridge Co. of New York, New York, N. Y.
Reimont Iron Works, Inc., Philadelphia, Pa.
Champion Bridge Co., Wilmington, O.
Chicago Bridge & Iron Wks., Chicago, Ill.
Des Moines Bridge & Iron Co., Des Moines, Ia.
Farris Bridge Co., Pittsburgh, Pa.
Missouri Val. B'dge & Iron Co., Leavenworth, Kan.
Roanoke Bridge Co., Roanoke, Va.
Scherzer Rolling Lift Bridge Co., Chicago, Ill.
Vincennes Bridge Co., Vincennes, Ind.
Virginia Bridge & Iron Co., Roanoke, Va.
York Bridge Co., York, Pa.
- Bridge and Structural Iron Paints.**
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Chattanooga Paint Co., Chattanooga, Tenn.
Detroit Graphite Co., Detroit, Mich.
Dixon Crucible Co., Joseph, Jersey City, N. J.
Standard Paint Co., New York, N. Y.
- Brimstone.**
Union Sulphur Co., New York, N. Y.
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- Buckets. (Excavators.)**
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Stuebner Iron Works, G. L., Long Island City, New York, N. Y.
Williams Co., The, G. H., Cleveland, O.
- Buckets. (Ore, etc.)**
Brown Hoisting Mch. Co., Cleveland, O.
Caldwell & Son Co., H. W., Chicago, Ill.
Dodge Manufacturing Co., Milwaukee, Ind.
Hayward Co., New York, N. Y.
Link-Belt Co., Nicetown (Philadelphia), Pa.
Owen Bucket Co., Cleveland, O.
Smith Co., T. L., Atlanta, Ga.
Williams Co., The, G. H., Cleveland, O.
- Buhr Stones.**
Starr Co., B. F., Baltimore, Md.
- Builders and Contractors.**
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Farris Bridge Co., Pittsburgh, Pa.
Ferro Concrete Construction Co., Cincinnati, O.
Lisle-Dunning Const. Co., Oklahoma City, Okla.
Selma-Breck Construction Co., St. Louis, Mo.
White & Co., J. G., New York, N. Y.
- Buildings. (Financed and Erected.)**
Falls City Construction Co., Louisville, Ky.
Fuld Coast Construction Co., Houston, Tex.
Lisle-Dunning Const. Co., Oklahoma City, Okla.
- Building Supplies.**
Armstrong Mfg. Co., Richmond, Va.
Carolina Portland Cement Co., Charleston, S. C.
Chicago House Wrecking Co., Chicago, Ill.
Southeastern Lime & Cement Co., Charleston, S. C.
Southern Building Material Co., Norfolk, Va.
- Burlap—Inserted Roofing and Siding. (Flexible Cement.)**
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- Burners. (Oil.) (See Fuel Oil Equipments.)**
- Bushings. (Oilless, for Loose Pulleys.)**
North Amer. Metaline Co., Long Island City, N. Y.
- Cables.**
American Steel & Wire Co., Chicago, Ill.
Broderick & Bascom Rope Co., St. Louis, Mo.
Roebeling's Sons Co., John A., Trenton, N. J.
Williamsport Wire Rope Co., Williamsport, Pa.
- Cableways. (Overhead Suspension.)**
Broderick & Bascom Rope Co., St. Louis, Mo.
Flory Mfg. Co., S., Bangor, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Mead-Morrison Mfg. Co., Cambridgeport, Mass.
Roebeling's Sons Co., John A., Trenton, N. J.
- Can and Box Making Machinery. (Tin.)**
Bliss Co., E. W., Brooklyn, N. Y.
- Cans.**
New Orleans Rfg. & Metal Wks., New Orleans, La.
Southern Can Co., Baltimore, Md.
- Canning Machinery and Supplies.**
Robins & Co., A. K., Baltimore, Md.
Sinclair-Scott Co., Baltimore, Md.
Sprague Canning Machinery Co., Chicago, Ill.
- Carborundum Paper and Cloth.**
Carborundum Co., Niagara Falls, N. Y.
- Card Clothing.**
American Supply Co., Providence, R. I.
- Cars. (Dump, Industrial, Logging and Mine.)**
Austin Mfg. Co., Chicago, Ill.
Baldwin Equipment & Supply Co., Chicago, Ill.
Chase Fdry. & Mfg. Co., Columbus, O.
Georgia Car & Locomotive Co., Atlanta, Ga.
Hunt Co., C. W., West New Brighton, N. Y.
Males Co., The, Cincinnati, O.
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
Raleigh Iron Works Co., Raleigh, N. C.
Smith Co., T. L., Atlanta, Ga.
Stuebner Iron Works, G. L., Long Island City, New York, N. Y.
Union Iron Works, Selma, Ala.
Western Wheeled Scraper Co., Aurora, Ill.
- Cars. (Passenger and Freight.) (See Railroad Equipment and Supplies.)**
- Car Couplers and Knuckles.**
Safety Car H't'g & L'ght'g Co., New York, N. Y.
- Car Lighting and Heating.**
Safety Car H't'g & L'ght'g Co., New York, N. Y.
- Car Steps. (Extension.)**
Blake Car Step Works, Charlotte, N. C.
- Car Wheels, Axles and Trucks.**
Carnegie Steel Co., Pittsburgh, Pa.
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
Union Iron Works, Selma, Ala.
- Casters.**
Clark Co., Geo. P., Windsor Locks, Conn.
- Castings. (Aluminum.)**
Aluminum Company of America, Pittsburgh, Pa.
- Castings. (Brass and Bronze.)**
Gilbert & Sons Brass Fdry. Co., A., St. Louis, Mo.
Keystone Bronze Co., Pittsburgh, Pa.
Phosphor-Bronze Smelting Co., Phila., Pa.
Richmond Machine Works, Inc., Richmond, Va.
Stratton & Bragg Co., Petersburg, Va.
Triumph Electric Co., Cincinnati, Ohio.
- Castings. (Iron, Gray, etc.)**
Columbian Iron Works, Chattanooga, Tenn.
Gibbs Machinery Co., Columbus, S. C.
Georgia Car & Locomotive Co., Atlanta, Ga.
Glanmorag Pipe & Foundry Co., Lynchburg, Va.
McWane Pipe Works, Lynchburg, Va.
Poole Engineering & Machine Co., Baltimore, Md.
Roanoke Iron Works, Inc., Roanoke, Va.
Robins Conveying Belt Co., New York, N. Y.
Rose-Mechan Foundry Co., Chattanooga, Tenn.
Stratton & Bragg Co., Petersburg, Va.
U. S. Cast Iron Pipe & Fdy. Co., New York, N. Y.
Valk & Murdock Iron Works, Charleston, S. C.
Westbrook Elevator Co., Danville, Va.
- Castings. (Malleable Iron and Steel.)**
Missouri Malleable Iron Co., East St. Louis, Ill.
- Castings. (Steel.)**
Crucible Steel Castings Co., Lansdowne, Pa.
Hoffman & Co., R. C., Baltimore, Md.
Reliance Steel Casting Co., Pittsburgh, Pa.
- Ceilings. (Metal.)**
Chattanooga Rfg. & Fdry. Co., Chattanooga, Tenn.
Edwards Manufacturing Co., Cincinnati, O.
Harry Steel Co., O. K., St. Louis, Mo.
Highley Metal Cell. & Mfg. Co., S. Pittsburgh, Pa.
Milwaukee Corrugating Co., Milwaukee, Wis.
- Cement.**
Alpha Portland Cement Co., Easton, Pa.
American Cement Co., Philadelphia, Pa.
Carolina Portland Cement Co., Charleston, S. C.
Cincinnati Portland Cement Corp., Kingsport, Tenn.
Dixie Portland Cement Co., Chattanooga, Tenn.
Hartman Portland Cement Co., Wm. G., Philadelphia, Pa.
Hinton Portland Cement Co., Iron, O.
Kirkpatrick Sand & Cem. Co., Birmingham, Ala.
Kosmos Portland Cement Co., Louisville, Ky.
Lehigh Portland Cement Co., Allentown, Pa.
Security Cement & Lime Co., Allentown, Md.
Southern Line & Cement Co., Charleston, S. C.
Southern States Portland Cement Co., Rockmart, Ga.
Standard Portland Cement Co., Leeds, Ala.
Tidewater Portland Cement Co., Baltimore, Md.
- Cement. (Liquids.)**
Glidden Varnish Co., Cleveland, O.
- Cement Machinery.**
Aising Engineering Co., J. H., New York, N. Y.
Power & Mining Machinery Co., Cudahy, Wis.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
- Chain Blocks.**
Ford Chain Block & Mfg. Co., Philadelphia, Pa.
- Chains. (Dredge, Quarry, Steam Shovel.)**
Weimer Chain & Iron Co., Lebanon, Pa.
- Channellers.**
Ingersoll-Rand Co., New York, N. Y.
- Checks, Metal. (Factory, Time and Me. chandise.)**
American Railway Supply Co., New York, N. Y.
- Chemical and Drug Machinery.**
Campbell, F. F., Philadelphia, Pa.
- Chemists.**
Burn, Harry, Birmingham, Ala.
Davis, Geo. O., Philadelphia, Pa.
Froehling & Robertson, Richmond, Va.
McKenna, Dr. Chas. F., New York, N. Y.
- Chimneys. (Steel-Concrete.)**
Specialty Eng. Co., Houston, Tex.
Weber Chimney Co., Chicago, Ill.
- Chloride Accumulator.**
Electric Storage Battery Co., The, Phila., Pa.
- Chucks.**
Morse Twist Drill & Mch. Co., New Bedford, Mass.
- Cities and Towns. (Commercial and Industrial Opportunities.) (See Industrial, Agricultural and Commercial Opportunities.)**
- Clayworking Machinery. (See Brick and Clayworking Mch. and Supplies.)**
- Cleansing Compound. (Floors, etc.)**
India Alkal Works, Boston, Mass.
- Clocks. (Electro-Self-Winding.)**
Electro-Clock Co., Baltimore, Md.
- Clocks. (Time Recorders.)**
Kaiser, Louis E., Baltimore, Md.
- Clocks. (Watchman.)**
Holtzer-Cabot Electric Co., Boston, Mass.
Kaiser, Louis E., Baltimore, Md.
- Clutches.**
Dodge Manufacturing Co., Milwaukee, Ind.
Positive Clutch & Pulley Works, Buffalo, N. Y.
- Coal.**
Alabama Coal & Iron Co., Birmingham, Ala.
Cincinnati Coal Corp., Spartanburg, S. C.
Cincinnati Fuel Co., Spartanburg, S. C.
Consolidated Coal Co., Inc., New York, N. Y.
Flat Top Fuel Co., Blinfield, W. Va.
Pittsburgh-Buffalo Co., Pittsburgh, Pa.
Tennessee Coal, Iron & R. R. Co., B'gh'm, Ala.

- Coal Bricketing Machinery.**
Devlin, Robert, Brooklyn, N. Y.
- Coal Cutters.**
Ingersoll-Rand Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
- Coal Handling Machinery.**
Bartlett & Snow Co., C. O., Cleveland, O.
Brown Hoisting Mch. Co., Cleveland, O.
Hayward Co., New York, N. Y.
Hunt Co., C. W., West New Brighton, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Lank-Belt Co., Nicetown (Philadelphia), Pa.
Morrison Mfg. Co., Cambridgeport, Mass.
Nelson Conveying Belt Co., New York, N. Y.
Williams Co., The G. H., Cleveland, O.
- Coal Tar and By-Products.**
Bartlett Mfg. Co., Philadelphia, Pa.
Carolina Portland Cement Co., Charleston, S. C.
- Coke.**
Alabama Coal & Iron Co., Birmingham, Ala.
Flat Top Fuel Co., Bluefield, W. Va.
Pittsburgh-Buffalo Co., Pittsburgh, Pa.
Rogers, Brown & Co., Cincinnati, O.
Tennessee Coal, Iron & R. R. Co., B'ham, Ala.
- Concrete Construction (Steel Reinforcement.)**
American Steel & Wire Co., Chicago, Ill.
Brown Hoisting Machinery Co., Cleveland, O.
Concrete Steel Engineering Co., New York, N. Y.
Horn Concrete Construction Co., Cincinnati, O.
Pater-Creighton-Gould Co., Nashville, Tenn.
Jeffrey Mfg. Co., Columbus, O.
Kaiser Mfg. Co., Milwaukee, Wis.
Specialty Eng. Co., Houston, Tex.
Wight & Co., W. N., New York, N. Y.
- Concrete Curb Protection (Steel.)**
Steel Protected Concrete Co., Philadelphia, Pa.
- Concrete Dams.**
American Hydraulic Const. Co., Boston, Mass.
Hydraulic Properties Co., New York, N. Y.
- Concrete Floor Dressing (Waterproof.)**
Gibson Varish Co., Cleveland, O.
- Concrete Forms (Metal.)**
Kaiser Mfg. Co., Milwaukee, Wis.
- Concrete Mixers.**
Carolina Portland Cement Co., Charleston, S. C.
Jeffrey Mfg. Co., Columbus, O.
Kaiser Mfg. Co., Milwaukee, Wis.
Milwaukee Concrete Mixer & Mch. Co., Milwaukee, Wis.
Smith Co., T. L., Atlanta, Ga.
Standard Scale & Supply Co., Pittsburg, Pa.
Waterloo Cement Mch. Co., Waterloo, Iowa.
- Concrete Pile (Corrugated.)**
The Underground Const. Co., St. Louis, Mo.
- Concrete Reinforcing Bars.**
Concrete Steel Co., Pittsburg, Pa.
Concrete-Steel Co., The New York, N. Y.
Concrete Steel Engineering Co., New York, N. Y.
Franklin Steel Co., Franklin, Pa.
- Concrete Ties.**
Universal Concrete Tie Co., New Orleans, La.
- Condensers.**
Albion Condenser Co., New York, N. Y.
Boiler Steam Pump Wks., Indianapolis, Ind.
Westinghouse Machine Co., Pittsburg, Pa.
York Mfg. Co., York, Pa.
- Conductor Pipe.**
Hawley Mfg. Co., Cincinnati, O.
Hawley & Co., C. O., Pittsburg, Pa.
Milwaukee Corrugating Co., Milwaukee, Wis.
- Contractors (Hydro-Electric Developments.)**
Multiple Arch Hyd. Const. Co., Ltd., Spartanburg, S. C.
- Contractors' Machinery and Supplies (See also Hoisting Machinery.)**
American Engineering Co., Philadelphia, Pa.
American Hoist & Derrick Co., St. Paul, Minn.
American Locomotive Co., New York, N. Y.
Austin Mfg. Co., Chicago, Ill.
Case Threshing Mch. Co., J. I., Racine, Wis.
Clyde Iron Works, Duluth, Minn.
Contractors' Plant Mfg. Co., Ltd., Buffalo, N. Y.
Eaton Machine Works, Pittsburg, Pa.
Hawley Mfg. Co., Cincinnati, O.
Hawley & Co., C. O., Pittsburg, Pa.
Ingersoll-Rand Co., New York, N. Y.
Lank-Belt Co., New York, N. Y.
Lank-Belt Co., The Cincinnati, O.
Lank-Belt & Supply Co., New York, N. Y.
Lank-Belt & Supply Co., Baltimore, Md.
Lank-Belt & Supply Co., Cambridgeport, Mass.
Lank-Belt Mch. Co., Chicago, Ill.
Lank-Belt Co., Wm. J., Knoxville, Tenn.
Lank-Belt Co., Cleveland, O.
Lank-Belt Co., Inc., H. W., Philadelphia, Pa.
Lank-Belt & Supply Co., New York, N. Y.
Lank-Belt Conveying Belt Co., New York, N. Y.
Lank-Belt Co., T. L., Atlanta, Ga.
Lank-Belt Iron Works, G. L., Long Island City, New York, N. Y.
- Conveying Machinery.**
Bartlett & Snow Co., C. O., Cleveland, O.
Brown Hoisting Mch. Co., Cleveland, O.
Caldwell & Son Co., H. W., Chicago, Ill.
Hawley Mfg. Co., Cincinnati, O.
Hawley & Co., C. O., Pittsburg, Pa.
Hawley Mfg. Co., Columbus, O.
Lank-Belt Co., Nicetown (Philadelphia), Pa.
Lank-Belt & Supply Co., Cambridgeport, Mass.
Lank-Belt Stone Mach. Co., Hollidaysburg, Pa.
Lank-Belt Conveying Belt Co., New York, N. Y.
- Cooling Towers.**
Albion Condenser Co., New York, N. Y.
Bunnell-Dawley Mfg. Co., St. Louis, Mo.
- Cordage.**
American Mfg. Co., New York, N. Y.
Dixie & Bascam Rope Co., St. Louis, Mo.
Columbia Rope Co., Auburn, N. Y.
Plymouth Cordage Co., North Plymouth, Mass.
Tanner Co., J. Spencer, New York, N. Y.
Whitlock Cordage Co., New York, N. Y.
- Cordage Machinery.**
Kestell-Dawes Machine Co., Boston, Mass.
- Corn-Mill Machinery.**
Burdette & Marmon Co., Indianapolis, Ind.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Burr Co., B. F., Baltimore, Md.
Wet Co., Chambersburg, Pa.
- Cotton Duck.**
Tanner Co., J. Spencer, New York, N. Y.
- Cotton Oil and Products.**
American Cotton Oil Co., New York, N. Y.
- Cotton Yarns (Commission Merchants.)**
Hudson, Linkroom & Co., New York, N. Y.
- Cotton-Gin Machinery.**
Carver Cotton Gin Co., East Bridgewater, Mass.
Continental Gin Co., Birmingham, Ala.
Gibbs Machinery Co., Columbia, S. C.
Van Winkle Gin & Machine Co., Atlanta, Ga.
- Cotton-Mill Machinery.**
American Mach. & Mfg. Co., Charlotte, N. C.
American Supply Co., Providence, R. I.
Draper Co., Hopedale, Mass.
Kilston Machine Shop, Lowell, Mass.
Lowell Machine Shop, Lowell, Mass.
Mason Machine Works, Taunton, Mass.
Saco-Petee Co., Newton Upper Falls, Mass.
Whitman Machine Works, Whitinsville, Mass.
Whitinsville Spin's Ring Co., Whitinsville, Mass.
- Cotton-Mill Supplies.**
American Supply Co., Providence, R. I.
Whitinsville Spin's Ring Co., Whitinsville, Mass.
- Cottonseed-Oil Machinery.**
Buckeye Iron & Brass Works, Dayton, O.
Burruss Engineering Co., Atlanta, Ga.
Calahan Co., W. F., The Dayton, O.
Cardwell Machine Co., Richmond, Va.
Carver Cotton Gin Co., East Bridgewater, Mass.
Continental Gin Co., Birmingham, Ala.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Van Winkle Gin & Machine Co., Atlanta, Ga.
- Couplings.**
American Spiral Pipe Works, Chicago, Ill.
Brown Co., A. & F., New York, N. Y.
Caldwell Co., Inc., W. B., Louisville, Ky.
Dodge Manufacturing Co., Milwaukee, Ind.
Golden Foundry & Machine Co., Columbia, Ga.
Sinclear-Scott Co., Baltimore, Md.
Wood's Sons, T. B., Chambersburg, Pa.
- Couplings (Car.)**
Weimer Chain & Iron Co., Lebanon, Pa.
- Couplings (Hose, Air, Gas, Steam and Water.)**
National Tube Co., Pittsburg, Pa.
- Covering (Pipe, Boiler, etc.)**
Carolina Portland Cement Co., Charleston, S. C.
Johns-Manville Co., H. W., New York, N. Y.
Southern Pipe Covering Co., Inc., Richmond, Va.
- Cranes (Locomotive.)**
American Hoist & Derrick Co., St. Paul, Minn.
Brown Hoisting Machinery Co., Cleveland, O.
Kaiser Machine Works, Pittsburg, Pa.
Ohio Locomotive Crane Co., Bucyrus, Ohio.
- Cranes (Traveling, Hand, Power, Hydraulic.)**
Brown Hoisting Machinery Co., Cleveland, O.
Hawley Mfg. Co., Cincinnati, O.
Lane Mfg. Co., Montpelier, Vt.
Northern Engineering Works, Detroit, Mich.
Speidel, J. G., Reading, Pa.
- Crayons.**
Lowell Crayon Co., Lowell, Mass.
- Crematories (Garbage.)**
Specialty Eng. Co., Houston, Tex.
- Crescote.**
Carolina Portland Cement Co., Charleston, S. C.
- Crescote Oil.**
Atlantic Turpentine & Refin'g Co., Savannah, Ga.
- Crescote Wood Block (Contractors for Laying.)**
Crescote Wood Block Pav. Co., New Orleans, La.
- Crescote Wood Works.**
Gulfport Creosoting & Cons. Co., Galveston, Tex.
Internat'l Creosoting & Cons. Co., Galveston, Tex.
National Lumber & Creosote Co., Texarkana, Ark.
Southern Creosoting Co., Ltd., Sibley, La.
Southern Wood Preserving Co., Atlanta, Ga.
- Crossarms and Pins.**
Carolina Electrical Co., Raleigh, N. C.
Internat'l Creosoting & Cons. Co., Galveston, Tex.
Southern Creosoting Co., Ltd., Sibley, La.
Western Electric Co., New York, N. Y.
- Crossings (See Railroad Frogs and Switches.)**
- Crosstie Machine.**
Standard Cross Tie Mch. Co., New Orleans, La.
- Crossties.**
Internat'l Creosoting & Cons. Co., Galveston, Tex.
National Lumber & Creosote Co., Texarkana, Ark.
Southern Creosoting Co., Ltd., Sibley, La.
Universal Concrete Tie Co., New Orleans, La.
- Crossties (Reinforced Concrete.)**
Universal Concrete Tie Co., New Orleans, La.
- Crossties (Steel.)**
Carriage Steel Co., Pittsburg, Pa.
- Crushers (Corn and Cob.)**
Gardner Crusher Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Williams Pat. Crusher & Pulv. Co., Chicago, Ill.
- Crushers (Rock.)**
Austin Mfg. Co., Chicago, Ill.
Case Threshing Mch. Co., J. I., Racine, Wis.
Crescon Co., Geo. V., Philadelphia, Pa.
Gardner Crusher Co., New York, N. Y.
Hawley & Co., C. O., Pittsburg, Pa.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Smith Co., T. L., Atlanta, Ga.
Universal Road Mch. Co., Kingston, N. Y.
Waterloo Cement Mch. Co., Waterloo, Iowa.
Western Wheeled Scraper Co., Aurora, Ill.
- Crushing and Pulverizing Machinery.**
Aising Engineering Co., J. R., New York, N. Y.
Austin Mfg. Co., Chicago, Ill.
Bartlett & Snow Co., C. O., Cleveland, O.
Crescon Co., Geo. V., Philadelphia, Pa.
Gardner Crusher Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
Power & Mining Machinery Co., Cudahy, Wis.
Pratt Engineering & Mach. Co., Atlanta, Ga.
New Orleans Rfg. & Metal Wks., New Orleans, La.
Walker & Elliott, Wilmington, Del.
Williams Pat. Crusher & Pulv. Co., Chicago, Ill.
Western Wheeled Scraper Co., Aurora, Ill.
- Culverts (Corrugated Metal.)**
American Rolling Mill Co., Middletown, O.
Canton Culvert Co., The Canton, O.
Dixie Culvert & Metal Co., Atlanta, Ga.
Harry Steel Co., O. K., St. Louis, Mo.
Kentucky Culvert Mfg. Co., Buechel, Ky.
New Orleans Rfg. & Metal Wks., New Orleans, La.
North Carolina Metal Culv. Co., Greensboro, N. C.
Roanoke Bridge Co., Roanoke, Va.
Tennessee Metal Culvert Co., Nashville, Tenn.
Virginia Metal & Culvert Co., Inc., Roanoke, Va.
- Culverts (Vitrified Pipe.)**
Bibb Sewer Pipe Co., Macon, Ga.
Stevens Sons Co., H. A., Macon, Ga.
- Cupola Furnaces.**
Northern Engineering Works, Detroit, Mich.
Paxson Co., J. W., Philadelphia, Pa.
Petroleum Iron Works Co., Sharon, Pa.
- Cuts (Half-tone, Line, etc.)**
Baltimore Maryland Engr. Co., Baltimore, Md.
- Cutter Heads (Woodworking.)**
Shimer & Sons, Samuel J., Milton, Pa.
- Cutter Grinders.**
Abrasive Material Co., Philadelphia, Pa.
Vitrified Wheel Co., Westfield, Mass.
- Dams (Multiple Arch Masonry.)**
Multiple Arch Hydraulic Const. Co., Ltd., Spartanburg, S. C.
- Dams (Reinforced Concrete.)**
Amburns Hydraulic Const. Co., Boston, Mass.
Hydraulic Properties Co., New York, N. Y.
- Derricks and Derrick Fittings.**
American Hoist & Derrick Co., St. Paul, Minn.
Monaghan Machine Co., Chicago, Ill.
National Hoisting Machine Co., Harrison, N. J.
Waterloo Cement Mch. Co., Waterloo, Iowa.
- Designers and Illustrators (Printed Matter.)**
Baltimore Maryland Engr. Co., Baltimore, Md.
- Die Blocks.**
Erie Forge Co., Erie, Pa.
- Ditching Machinery.**
American Hoist & Derrick Co., St. Paul, Minn.
American Locomotive Co., New York, N. Y.
American Steam Dredge Co., Ft. Wayne, Ind.
Fairbanks Steam Shovel Co., Marion, O.
Hawley Co., The New York, N. Y.
Marion Steam Shovel Co., Marion, O.
Monaghan Machine Co., Chicago, Ill.
Owen Bucket Co., Cleveland, O.
Williams Co., The G. H., Cleveland, O.
- Doors (Birch Veneered.)**
Carolina Portland Cement Co., Charleston, S. C.
Massey & Felton Lumber Co., Macon, Ga.
- Doors (Steel Rolling.)**
Kinner Mfg. Co., Columbus, O.
- Doors (Tin Clad.)**
Victor Mfg. Co., Newburyport, Mass.
- Doors, Partitions (Metallic.)**
Dahlstrom Metallic Door Co., Jamestown, N. Y.
United States Metal Products Co., New York, N. Y.
- Doors, Sash and Blinds.**
Columbus Iron Works Co., Columbus, Ga.
Massey & Felton Lumber Co., Macon, Ga.
- Draftsmen's Supplies.**
Keuffel & Esser, Hoboken, N. J.
Weber & Co., F., Philadelphia, Pa.
- Dredge Chains.**
Weimer Chain & Iron Co., Lebanon, Pa.
- Dredges (See Excavating Machinery.)**
- Drills (Pneumatic) (See also Drills, Rock and Mining.)**
- Drills (Prospecting.)**
Fort Wayne Electric Works, Fort Wayne, Ind.
Ingersoll-Rand Co., New York, N. Y.
Keystone Steam Well Mach. Co., Beaver Falls, Pa.
- Drills (Rock and Mining.)**
Chicago Pneumatic Tool Co., Chicago, Ill.
Fort Wayne Electric Works, Fort Wayne, Ind.
Independent Pneumatic Tool Co., Chicago, Ill.
Ingersoll-Rand Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Wicks Bros., Jersey City, N. J.
- Drills (Twist.)**
Manning, Maxwell & Moore, Inc., New York, N. Y.
Morse Twist Drill & Mch. Co., New Bedford, Mass.
- Drive Well Points and Well Supplies.**
National Tube Co., Pittsburg, Pa.
- Drop Forgings.**
American Spiral Pipe Works, Chicago, Ill.
Richmond Forgings Corporation, Richmond, Va.
- Drop Forging Machinery.**
Bliss Co., E. W., Brooklyn, N. Y.
- Drying Machinery.**
American Blower Co., Detroit, Mich.
American Process Co., New York, N. Y.
Bailey-Leiby Co., The Charleston, S. C.
Buffalo Forge Co., Buffalo, N. Y.
Ruggles-Coles Engineering Co., New York, N. Y.
Sturtevant Co., B. F., Hyde Park, Mass.
- Drykilns.**
American Blower Co., Detroit, Mich.
Buffalo Forge Co., Buffalo, N. Y.
Union Iron Works Co., Selma, Ala.
- Dumbwaiters.**
Hollister-Whitney Co., Quincy, Ill.
Sidney Elevator & Mfg. Co., Sidney, O.
Speidel, J. G., Reading, Pa.
- Dump Wagons and Wagon Boxes.**
Case Threshing Mch. Co., J. I., Racine, Wis.
Eagle Wagon Works, Auburn, N. Y.
Troy Wagon Works Co., Troy, O.
- Dust-Collecting Systems.**
Buffalo Forge Co., Buffalo, N. Y.
Savannah Blow Pipe Co., Savannah, Ga.
Standard Blower & Metal Mfg. Co., Atlanta, Ga.
- Dynamite.**
Du Pont de Nemours Powder Co., E. I., Wilmington, Del.
- Dynamometers and Motors (Steam Turbine.)**
De Laval Steam Turbine Co., Trenton, N. J.
Emerson Steam Pump Co., Alexandria, Va.
Fort Wayne Electric Works, Ft. Wayne, Ind.
General Electric Co., Schenectady, N. Y.
Southway Fdry. & Mch. Co., Philadelphia, Pa.
Terry Steam Turbine Co., New York, N. Y.
Western Electric Co., New York, N. Y.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.
- Eaves (Trough.)**
Edwards Mfg. Co., Cincinnati, O.
Hussey & Co., C. O., Pittsburg, Pa.
Milwaukee Corrugating Co., Milwaukee, Wis.
- Ejectors (Auto Sewage.)**
Blaisdell Machinery Co., Bradford, Pa.
- Electric Machinery (Dynamometers, Generators, Motors, etc.)**
Allis-Chalmers Co., Milwaukee, Wis.
American Engine Co., Bound Brook, N. J.
American Machine Co., Louisville, Ky.
Crocket-Wheeler Co., Amers, N. J.
Engberg's Elect. & Mech. Wks., St. Joseph, Mich.
Fairbanks, Morse & Co., Chicago, Ill.
Fort Wayne Electric Works, Ft. Wayne, Ind.
General Electric Co., Schenectady, N. Y.
Gregory Electric Co., Chicago, Ill.
Heer Engine Co., Portsmouth, O.
Kentucky Electrical Co., Owensboro, Ky.
Kleinhaus, H., Pittsburgh, Pa.
Lee Electric Co., Baltimore, Md.
Miller-Owen Elec. Co., Pittsburg, Pa.
Piedmont Electric Co., Asheville, N. C.
Ridgway Dynamo & Engine Co., Ridgway, Pa.
Robbins & Myers Co., Springfield, O.
Southway Fdry. & Mch. Co., Philadelphia, Pa.
Sturtevant Co., B. F., Hyde Park, Mass.
Triumph Electric Co., Cincinnati, O.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.
- Electrical Contractors, Instruments and Supplies.**
American Mach. & Mfg. Co., Charlotte, N. C.
Crocket-Wheeler Co., Amers, N. J.
Electrical Engineers' Equip. Co., Chicago, Ill.
Engberg's Elect. & Mech. Wks., St. Joseph, Mich.
Fort Wayne Electric Works, Ft. Wayne, Ind.
General Electric Co., Schenectady, N. Y.
Gregory Electric Co., Chicago, Ill.
Joues-Manville Co., H. W., New York, N. Y.
Kentucky Electrical Co., Owensboro, Ky.
Lee Electric Co., Baltimore, Md.
Levy, Deronda, Columbus, Ga.
Piedmont Electric Co., Asheville, N. C.
Robbins & Myers Co., Springfield, O.
Westinghouse Elec. & Mfg. Co., Pittsburg, Pa.
- Electrical Power-House Supplies.**
Electrical Engineers' Equip. Co., Chicago, Ill.
- Electro Magnet (See Magnet Electro.)**
Elevating, Conveying and Power Transmission Machinery (See also Conveying Mch. and Power Transmission Mch.)
Jeffrey Mfg. Co., Columbus, O.
- Elevators.**
Albro-Clem Elevator Co., Philadelphia, Pa.
American Machine Co., Louisville, Ky.
Curran Elevator Co., James H., Cincinnati, O.
Hollister-Whitney Co., Quincy, Ill.
Kansas City Elevator Mfg. Co., Kansas City, Mo.
Moffat Machinery Mfg. Co., Charlotte, N. C.
Ohio Elevator & Machine Co., Columbus, O.
Otis Elevator Co., New York, N. Y.
Sidney Elevator & Mfg. Co., Sidney, O.
Speidel, J. G., Reading, Pa.
Warsaw Elevator Co., Baltimore, Md.
Westbrook Elevator Co., Danville, Va.
- Elevator Safety Appliances.**
Roth Elevator Safety Co., Inc., Baltimore, Md.
- Elevator Buckets.**
Caldwell & Son Co., H. W., Chicago, Ill.
Dodge Mfg. Co., Milwaukee, Ind.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Co., Philadelphia, Pa.
- Elevator Enclosures and Cabs.**
Boiler Iron & Wire Works, J. E., Detroit, Mich.
Cincinnati Mfg. Co., Cincinnati, O.
Dow Wire Works, Louisville, Ky.
Dufur & Co., Baltimore, Md.
Dufur, Bazzotti & Co., Baltimore, Md.
Ohio Elevator & Machine Co., The Columbus, O.
Otis Elevator Co., New York, N. Y.
Southern Wire & Iron Mfg. Co., Dallas, Tex.
- Elevator Ropes (See Wire Rope.)**
- Elevator Safety Gates.**
Richmond Safety Gate Co., Richmond, Ind.
- Emery Wheels (See Grinding Wheels.)**
- Engineers—**
COMBUSTION
Improved Equipment Co., New York, N. Y.
- CONSULTING.**
Fols, F. Julius, Lexington, Ky.
Gratam, Edgar M., Muskogee, Okla.
Hill, Norman A., Baltimore, Md.
Jaudon Engineering Co., H. S., Savannah, Ga.
Lewis, Fred H., Birmingham, Ala.
Lide, Martin J., Birmingham, Ala.
Macfarren, S. J., Washington, D. C.
Nichols, Charles H., New York, N. Y.
Quick, Alfred M., Baltimore, Md.
- DESIGNING—CONSTRUCTING.**
Brindley Co., New York, N. Y.
Foster-Creighton-Gould Co., Nashville, Tenn.
Gulf Coast Const. Co., Houston, Tex.
Hague, John, St. Louis, Mo.
Harlow Co., James H., Baltimore, Md.
Jaudon Engineering Co., H. S., Savannah, Ga.
Klotz, B. G., San Antonio, Tex.
Specialty Eng. Co., Houston, Tex.
Stone & Webster Eng. Co., Boston, Mass.
Summers & Co., L. L., Chicago, Ill.
White & Co., J. G., New York, N. Y.
- DESIGNING, CONSTRUCTING, POWER PLANTS, ETC.**
Brindley Co., New York, N. Y.
Day & Zimmermann, Philadelphia, Pa.
Emory & Eisenberg, Philadelphia, Pa.
Lea, Henry L., Chicago, Ill.
Lockwood, Greene & Co., Boston, Mass.
MacLauchlan Eng. Co., J. H., Baltimore, Md.
Manning-Hughes Co., Charlotte, N. C.
Mellor Furnace Engineering Co., Philadelphia, Pa.
Multiple Arch Hyd. Const. Co., Ltd., Spartanburg, S. C.
Quick, Alfred M., Baltimore, Md.
Serrine, J. E., Greenville, S. C.
Spiker, Wm. C., Atlanta, Ga.
Stevens, John & Lowell, Mass.
Virginia Bridge & Iron Co., Roanoke, Va.
Whitfield, Geo. H., Richmond, Va.
- DRAINAGE.**
Brindley Co., New York, N. Y.
Morgan Engineering Co., Memphis, Tenn.
- EFFICIENCY.**
Macfarren, S. J., Washington, D. C.
- ELECTRIC, CIVIL, ETC.**
Arnold Co., The Chicago, Ill.
Brindley Co., New York, N. Y.
Cottrill & Cottrill, Greenwood, S. C.
Crocket-Wheeler Co., Amers, N. J.
Drane, Brent S., Charlotte, N. C.
Emory & Eisenberg, Philadelphia, Pa.
Kellibolt, F. O., Baltimore, Md.
Larman, E. F., Cincinnati, O.
Leete-Maupin Engineering Co., Huntington, W. Va.
Lewis, Fred H., Birmingham, Ala.
Lide, Martin J., Birmingham, Ala.
Manning-Hughes Co., Charlotte, N. C.
Morgan Engineering Co., Memphis, Tenn.
Potter, Alexander, New York, N. Y.
Redding & Howard, Baltimore, Md.
Rucker, B. Parks, Charlotte, N. C.
Waldo, W., Houston, Tex.
White & Co., J. G., New York, N. Y.
Whitfield, Geo. H., Richmond, Va.
Young Co., C. S., San Antonio, Tex.
- GAS.**
Lea, Henry L., Chicago, Ill.
- GEOLOGICAL.**
Bureau of Assoc. Geological Engineers, Boston, Mass.
Davis, Geo. C., Philadelphia, Pa.
Fols, F. Julius, Lexington, Ky.
Froehling & Robertson, Richmond, Va.
- HYDRAULIC, SANITARY AND SNOWMACH.**
Brindley Co., New York, N. Y.
Burgwyn, C. F., Richmond, Va.
Harlow Co., James H., Baltimore, Md.
Hutton, T. Chaikley, Wilmington, Del.
Leete-Maupin Engineering Co., Huntington, W. Va.
Manning-Hughes Co., Charlotte, N. C.
McCrary Co., Inc., The J. B., Atlanta, Ga.
Multiple Arch Hydraulic Const. Co., Ltd., Spartanburg, S. C.
Myers, E. W., Greensboro, N. C.
Pew, Arthur, Atlanta, Ga.
Specialty Eng. Co., Houston, Tex.
Tecker & Laxton, Charlotte, N. C.
- ICE AND REFRIGERATING.**
Hague, John, St. Louis, Mo.
Tait-Nordmeyer Eng. Co., St. Louis, Mo.

- Engineers—**
ILLUMINATING.
 Holophane Co., Newark, Ohio.
LANDSCAPE.
 Drane, Brent S., Charlotte, N. C.
 Reding & Howard, Baltimore, Md.
REINFORCED CONCRETE CONSTRUCTION, BUILDINGS, BRIDGES, ETC.
 Concrete Steel Engineering Co., New York, N. Y.
 Gardner & Howe, Memphis, Tenn.
 Layman, E. F., Cincinnati, O.
WATER-WORKS.
 Bergwyn, C. F. E., Richmond, Va.
 Myers, E. W., Greensboro, N. C.
Engines.
GAS AND GASOLINE.
 Blaisdell Machinery Co., Bradford, Pa.
 Bogart Gas Power Eng. Co., Buffalo, N. Y.
 Fairbanks, Morse & Co., Chicago, Ill.
 Heer Engine Co., Portsmouth, O.
 Miets, A., New York, N. Y.
 Novo Engine Co., Lansing, Mich.
 Otto Gas Engine Works, Philadelphia, Pa.
 Power Mfg. Co., Lima, Ohio.
 Standard Gas Power Co., Atlanta, Ga.
 Westinghouse Machine Co., The, Pittsburgh, Pa.
OIL.
 Covington Mch. Co., New York, N. Y.
 Miets, A., New York, N. Y.
 Power Mfg. Co., Lima, Ohio.
Engines. (Steam.)
 Allis-Chalmers Co., Milwaukee, Wis.
 American Blower Co., Detroit, Mich.
 American Engine Co., New York, N. Y.
 American Hoist & Derrick Co., St. Paul, Minn.
 Ames Iron Works, Oswego, N. Y.
 Atlas Engine Works, Indianapolis, Ind.
 Ball Engine Co., Erie, Pa.
 Brownell Co., The, Dayton, O.
 Buffalo Forge Co., Buffalo, N. Y.
 Cameron & Barkley Co., Charleston, S. C.
 Chicago House Wrecking Co., Chicago, Ill.
 Cooper Co., C. & G., Mt. Vernon, O.
 Engberg's Elect. & Mch. Wks., St. Joseph, Mich.
 Gibbes Machinery Co., Columbus, S. C.
 Greenwood Co., I. & E., Cincinnati, O.
 Griffith & Wedge Co., The, Zanesville, O.
 Harrisonburg Fdry. & Mch. Wks., Harrisburg, Pa.
 Jovon, Owen, Hentschler Co., Hamilton, O.
 Houston, Stanwood & Gamble Co., Cincinnati, O.
 Leffel & Co., James, Springfield, O.
 Lombard Iron Works, Augusta, Ga.
 Mecklenburg Iron Works, Charlotte, N. C.
 Morris Machine Works, Baldwinville, N. Y.
 Murray Iron Works Co., Burlington, Ia.
 Oil City Boiler Co., Oil City, Pa.
 Phoenix Iron Works Co., Meadville, Pa.
 Price Machinery Co., S. M., Norfolk, Va.
 Ridgway Dynamo & Engine Co., Ridgway, Pa.
 Schofield's Sons Co., J. B., Macon, Ga.
 Smith-Courtney Co., Richmond, Va.
 Southern Engine & Boiler Works, Jackson, Tenn.
 Sturtevant Co., B. F., Hyde Park, Mass.
 Union Iron Works Co., Selma, Ala.
 Vilter Mfg. Co., Milwaukee, Wis.
 Westinghouse Machine Co., Pittsburgh, Pa.
Envelope Sealer and Stamper.
 Commercial Sales & Mfg. Co., Oberlin, O.
Envelopes.
 Young & Selden Co., Baltimore, Md.
Excavating Machinery. (Steam Shovels, etc.)
 American Locomotive Co., New York, N. Y.
 American Steel Dredge Co., Ft. Wayne, Ind.
 Baldwin Equipment & Supply Co., Chicago, Ill.
 Bucyrus Co., So. Milwaukee, Wis.
 Cable Excavator Co., Philadelphia, Pa.
 Fairbanks Steam Shovel Co., Marion, O.
 Hayward Mfg. Co., Columbus, O.
 Jeffrey Mfg. Co., Columbus, O.
 Lidgerwood Mfg. Co., New York, N. Y.
 Maes Co., Cincinnati, O.
 Marion Steam Shovel Co., Marion, O.
 Monaghan Machine Co., Chicago, Ill.
 Owen Bucket Co., Cleveland, O.
 Williams Co., The G. H., Cleveland, O.
Excelsior Machinery.
 Kline, Lewis T., Alpena, Mich.
Exhaust Heads.
 Abendroth & Root Mfg. Co., Newburgh, N. Y.
 American Spiral Pipe Works, Chicago, Ill.
 Greenwood Co., I. & E., Cincinnati, O.
 Moppes Mfg. Co., Springfield, O.
Exhibits. (Machinery Builders' Equipment and Supplies.)
 Source, The, Philadelphia, Pa.
 Builders' Exchange, Baltimore, Md.
Expansion Joints.
 Alberger Condenser Co., New York, N. Y.
 Badger & Sons Co., E. B., Boston, Mass.
Explosives.
 de Nemours Powder Co., E. I., Wilmington, Del.
Extension Steps. (For Railroad Coaches.)
 Blake Car Step Works, Charlotte, N. C.
Factory Sites. (Town and Railroad.) [See Industrial, Agricultural and Commercial Opportunities.]
Fans. (Electric.)
 General Electric Co., Schenectady, N. Y.
 Robbins & Myers Co., Springfield, O.
 Western Electric Co., New York, N. Y.
 Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.
Fans. (Ventilating.) [See Blowers, Exhaust Fans.]
Fastener Driving Machine. (Corrugated Joint.)
 Saranac Machine Co., St. Joseph, Mich.
Feed-Water Heaters and Purifiers.
 Alberger Condenser Co., New York, N. Y.
 American Water Softener Co., Philadelphia, Pa.
 Blake & Knowles Steam Pump Works, New York, N. Y.
 Brownell Co., Dayton, O.
 Exeter Machine Works, Pittsford, Pa.
 Gibbes Machinery Co., Columbus, S. C.
 Greenwood Co., I. & E., Cincinnati, O.
 Moppes Mfg. Co., Springfield, O.
 McAdoo, Thomas, Philadelphia, Pa.
 Murray Iron Works Co., Burlington, Ia.
 National Pipe Bending Co., New Haven, Conn.
 Scaife & Sons Co., Wm. B., Pittsburgh, Pa.
 Stewart Heater Co., Buffalo, N. Y.
 Wilmington Iron Works, Wilmington, N. C.
Feed-Water Heater and Purifier and Oil Separator Combined.
 Blake & Knowles Steam Pump Works, New York, N. Y.
 Stewart Heater Co., Buffalo, N. Y.
Pelt. (Building, Sheathing.)
 Barrett Mfg. Co., Philadelphia, Pa.
Fencing, Entrance Gates. (Iron, Steel, Wire.)
 American Steel & Wire Co., Chicago, Ill.
 Bolles Iron & Wire Works, J. E., Detroit, Mich.
 Wire Works, Louisville, Ky.
 Duff & Co., Baltimore, Md.
 New Jersey Wire Cloth Co., Trenton, N. J.
 Ohio Elevator & Mch. Co., The, Columbus, O.
- Fertilizer Machy. [See also Phosphate Mch.]**
 Campbell, F. F., Philadelphia, Pa.
 Pratt Eng. & Mch. Co., Atlanta, Ga.
 Smith Co., T. L., Atlanta, Ga.
 Volk & Murdoch Iron Works, Charleston, S. C.
 Walker & Elliott, Wilmington, Del.
 Wilmington Iron Works, Wilmington, N. C.
Files.
 Barnett Co., G. & H., Philadelphia, Pa.
 Delta File Works, Philadelphia, Pa.
 Nicholson File Co., Providence, R. I.
Filters. (Water, for Domestic and Industrial Purposes.)
 American Water Softener Co., Philadelphia, Pa.
 International Filter Co., Chicago, Ill.
 Lynn-Superior Co., The, Cincinnati, O.
 New York Co., Jewell Fil. Co., New York, N. Y.
 Robb Filter Co., Philadelphia, Pa.
 Scaife & Sons Co., Wm. B., Pittsburgh, Pa.
 Tucker & Laxton, Charlotte, N. C.
Financial Publication.
 Financial Review, New York, N. Y.
Fire Alarm Boxes.
 Balto. Mch. Products Co. (Relay Station P. O.), Baltimore, Md.
Fire Clay Brick. [See Brick, Fire Clay.]
Fire Box Blocks.
 Ashland Fire Brick Co., Ashland, Ky.
Fire Door Fixtures.
 Victor Mfg. Co., Newburyport, Mass.
Fire Extinguishers.
 Badger & Sons Co., E. B., Boston, Mass.
 General Fire Extinguisher Co., Providence, R. I.
 Kaiser, Louis E., Baltimore, Md.
Fire Extinguishing Apparatus.
 General Fire Extinguisher Co., Providence, R. I.
Fire Escapes.
 Bolles Iron & Wire Works, J. E., Detroit, Mich.
 Chesapeake Iron Works, Baltimore, Md.
Fire Insurance.
 Hartford Fire Insurance Co., Hartford, Conn.
Fireplaces. (Artistic Brick.)
 Fluke & Co., Inc., New York, N. Y.
Fireproof Building Construction. (Steel.) [See Concrete Construction.]
Fireproof Building Material.
 Dahlstrom Metallic Door Co., Jamestown, N. Y.
 Johns-Manville Co., H. W., New York, N. Y.
Fireproof Doors and Shutters.
 Dahlstrom Metallic Door Co., Jamestown, N. Y.
 Kinsner Mfg. Co., Columbus, O.
 Northern Roof & Metal Co., New Orleans, La.
 Richmond Safety Gate Co., Richmond, Ind.
 United States Metal Products Co., New York, N. Y.
 Victor Mfg. Co., Newburyport, Mass.
Fireproof Windows. [See Window Frames and Sashes (Fireproof).]
Flanges. (Iron and Steel.)
 American Cast Iron Pipe Co., Birmingham, Ala.
 American Pipe & Construction Co., Phila., Pa.
 American Spiral Pipe Works, Chicago, Ill.
 Cameron Machine Pump Wks., A. S., New York, N. Y.
 Dart Manufacturing Co., E. M., Providence, R. I.
 Glamorgan Pipe & Foundry Co., Lynchburg, Va.
 McWane Pipe Works, Lynchburg, Va.
 National Tube Co., Pittsburgh, Pa.
 S. & S. Cast Iron Pipe & Fdy. Co., New York, N. Y.
 Whitlock Coal Pipe Co., Hartford, Conn.
 Wood & Co., R. D., Philadelphia, Pa.
Flexible Joints.
 Moran Flex. Steam Joint Co., Inc., Louisville, Ky.
Flooring. (Cement.)
 Dagostin & Angelini Bros., Montgomery, Ala.
Flooring. (Hardwood, Maple, Oak.)
 Carolina Portland Cement Co., Charleston, S. C.
 Northern Machine Co., W. J., Memphis, Tenn.
 Nashville Hardwood Flooring Co., Nashville, Tenn.
Flour and Grist Mill Machinery and Supplies.
 Caldwell & Sons Co., H. W., Chicago, Ill.
 Gibbs Machinery Co., Columbus, S. C.
 Nordyke & Marmon Co., Indianapolis, Ind.
 Salem Foundry & Machine Works, Salem, Va.
 Starr Co., B. F., Baltimore, Md.
 Veatch & Co., L. R., Louisville, Ky.
 Wolf Co., Chambersburg, Pa.
Flushtank Regulator.
 Modern Iron Works, Quincy, Ill.
Foot Valves.
 Cameron Steam Pump Wks., A. S., New York, N. Y.
Forges.
 Buffalo Forge Co., Buffalo, N. Y.
 Sturtevant Co., B. F., Hyde Park, Mass.
Forgings.
 Richmond Forgings Corporation, Richmond, Va.
 Weimer Chain & Iron Co., Lebanon, Pa.
Forgings. (Hammered.)
 Erie Forge Co., Erie, Pa.
Foundations. (Waterproof.)
 Underground Constr. Co., The, St. Louis, Mo.
Foundations. (Open or Pneumatic.)
 Missouri Val. Bridge & Iron Co., Leavenworth, Kan.
Foundry Equipment and Supplies.
 Paxon Co., J. W., Philadelphia, Pa.
Frogs. [See Railroad Frogs and Switches.]
Fuel Economizer.
 Green Fuel Economizer Co., Mattawan, N. Y.
 Sturtevant Co., B. F., Hyde Park, Mass.
Fuel Oil.
 Gulf Refining Co., Pittsburgh, Pa.
 Texas Co., The, New York, N. Y.
Fuel Oil Equipment.
 Petroleum Iron Works Co., Sharon, Pa.
Fuses, Bases and Fittings.
 Johns-Manville Co., H. W., New York, N. Y.
Galvanized Steel and Iron.
 American Sheet & Tin Plate Co., Pittsburgh, Pa.
 J. C. H. Galvanizing Co., Philadelphia, Pa.
 La Belle Iron Works, Steubenville, O.
 McCalla, Harold, Philadelphia, Pa.
 New Orleans Roof & Metal Co., New Orleans, La.
 Wood Iron & Steel Co., Alan, Philadelphia, Pa.
 Youngstown Sheet & Tube Co., Youngstown, O.
Galvanizing Machinery.
 Wilford Iron Works Co., Millard F., Philadelphia, Pa.
Garages. (Fireproof and Portable.)
 Harry Steel Co., O. E., St. Louis, Mo.
- Gas Blowers. (Turbine.)**
 Terry Steam Turbine Co., New York, N. Y.
Gas Compressors.
 Blaisdell Machinery Co., Bradford, Pa.
 Ingersoll-Rand Co., New York, N. Y.
Gas Engines. [See Engines, Gas.]
Gas Holders.
 Chicago Bridge & Iron Wks., Chicago, Ill.
Gas Plants.
 Western Gas Construction Co., Ft. Wayne, Ind.
Gas Plants and Benches.
 Improved Equipment Co., New York, N. Y.
Gas Producers.
 Bogart Gas Power Eng. Co., Buffalo, N. Y.
 Improved Equipment Co., New York, N. Y.
 Otto Gas Engine Works, Philadelphia, Pa.
 Standard Gas Power Co., Atlanta, Ga.
 Westinghouse Machine Co., Pittsburgh, Pa.
 Wood & Co., R. D., Philadelphia, Pa.
Gasoline and Kerosene.
 Gulf Refining Co., Pittsburgh, Pa.
 Texas Co., The, New York, N. Y.
Gas and Steam Fitters' Tools.
 Saunders' Sons, D., Yonkers, N. Y.
Gaskets. (Rubber.)
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
Gears.
 Albro-Clem Elevator Co., Philadelphia, Pa.
 Brown Co., A. & F., New York, N. Y.
 Caldwell & Son Co., W. E., Louisville, Ky.
 Caldwell & Son Co., H. W., Chicago, Ill.
 Creason Co., Geo. V., Philadelphia, Pa.
 Dayton Globe Iron Works Co., Dayton, O.
 Dodge Manufacturing Co., Mishawaka, Ind.
 Earle Gear & Machine Co., The, Philadelphia, Pa.
 Jeffrey Mfg. Co., Columbus, O.
 Poole Engineering & Machine Co., Baltimore, Md.
 Positive Clutch & Pulley Works, Buffalo, N. Y.
 Trump Mfg. Co., Springfield, O.
Geologists.
 Bureau of Assoc. Geological Engineers, Boston, Mass.
 Froehling & Robertson, Richmond, Va.
Glass. (Plate, etc.)
 Blinswanger & Co., Memphis, Tenn.
 Holopane Co., Newark, Ohio.
Governors.
 Pickering Governor Co., Portland, Conn.
Grain Elevator Supplies.
 Caldwell & Sons Co., H. W., Chicago, Ill.
 Dodge Manufacturing Co., Mishawaka, Ind.
 Jeffrey Mfg. Co., Columbus, O.
 Link-Belt Co., Nicetown (Philadelphia), Pa.
Granite.
 Harris Granite Quarries Co., Salisbury, N. C.
Graphite.
 Detroit Graphite Co., Detroit, Mich.
 Dixon Crucible Co., Joseph, Jersey City, N. J.
Grates and Grate Bars.
 Mellor Furnace Engineering Co., Philadelphia, Pa.
 Thomas Grate Bar Co., Birmingham, Ala.
Gravel.
 Arundel Sand & Gravel Co., Baltimore, Md.
 Lathrop & Co., C. P., Richmond, Va.
Grease.
 Albany Lubricating Co., New York, N. Y.
Grease Cups.
 Albany Lubricating Co., New York, N. Y.
Greases and Lubricating Compounds.
 Albany Lubricating Co., New York, N. Y.
 Calens Signal Oil Co., Franklin, Pa.
 Robinson & Son Co., Wm. O., Baltimore, Md.
 Texas Co., The, New York, N. Y.
Grinders. (Gypsum, Limestone, etc.)
 Gardner Crusher Co., New York, N. Y.
 Williams Pat. Crusher & Pulv. Co., Chicago, Ill.
Grinding Wheels.
 Abrasive Material Co., Philadelphia, Pa.
 Carborundum Co., Niagara Falls, N. Y.
 Norton Co., Worcester, Mass.
 Vitrified Wheel Co., Westfield, Mass.
Groovers.
 Huther Bros. Saw Mfg. Co., Rochester, N. Y.
Gunpowder.
 de Nemours Powder Co., E. I., Wilmington, Del.
Hammers. (Steam, Power, Pneumatic.)
 Chicago Pneumatic Tool Co., Chicago, Ill.
 Independent Pneumatic Tool Co., Chicago, Ill.
 Ingersoll-Rand Co., New York, N. Y.
Hand Elevators.
 McKenna Bros. Brass Co., Pittsburgh, Pa.
 Sidney Elevator Mfg. Co., Sidney, O.
Handle Machinery. [See Woodworking Mch.]
Hangers. [See Pulleys, Shafting and Hangers.]
Hardwood Doors and Trim.
 Massee & Felton Lumber Co., Macon, Ga.
Hauling Engines. (Steam Traction.)
 Case Threshing Mach. Co., J. I., Racine, Wis.
Hay Tools.
 Myers & Bro., F. M., Ashland, O.
Heater. (Portable, for Bituminous Pavements.)
 Ruggles-Coles Engineering Co., New York, N. Y.
Heating Apparatus, Engineers and Contractors.
 American Blower Co., Detroit, Mich.
 Buffalo Forge Co., Buffalo, N. Y.
 Monitor Steam Generator Mfg. Co., Balto., Md.
 Peck-Hammond Co., The, Cincinnati, O.
 Sturtevant Co., B. F., Hyde Park, Mass.
Holisting Machinery.
 American Engineering Co., Philadelphia, Pa.
 American Hoist & Derrick Co., St. Paul, Minn.
 Brown Hoisting Mch. Co., Cleveland, O.
 Byers Machine Co., John F., Ravens, O.
 Clyde Iron Works, Duluth, Minn.
 Contractors' Plant Mfg. Co., Ltd., Buffalo, N. Y.
 Exeter Machine Works, Pittsford, Pa.
 Flory Mfg. Co., S. Bangor, Pa.
 Hayward Co., New York, N. Y.
 Link-Belt Co., Nicetown (Philadelphia), Pa.
 Lidgerwood Mfg. Co., New York, N. Y.
 Maes Co., Cincinnati, O.
 Mead-Morrison Mfg. Co., Cambridgeport, Mass.
 Monaghan Machine Co., Chicago, Ill.
 National Hoisting Engine Co., Harrison, N. J.
 Smith Co., T. L., Atlanta, Ga.
 Stroudsburg Engine Works, Stroudsburg, Pa.
- Holists.**
CHAIN.
 Ford Chain Block & Mfg. Co., Philadelphia, Pa.
 Spindel, J. G., Reading, Pa.
ELECTRIC.
 American Hoist & Derrick Co., St. Paul, Minn.
 Lidgerwood Mfg. Co., New York, N. Y.
 Monaghan Mch. Co., Chicago, Ill.
 Northern Engineering Works, Detroit, Mich.
 Patten Mfg. Co., Chattanooga, Tenn.
PNEUMATIC MOTORS.
 Chicago Pneumatic Tool Co., Chicago, Ill.
 Ingersoll-Rand Co., New York, N. Y.
Hoops, Bands, etc. (Galvanized.)
 J. C. H. Galvanizing Co., Philadelphia, Pa.
 McCalla, Harold, Philadelphia, Pa.
Hoops. (Barrel.)
 American Steel & Wire Co., Chicago, Ill.
 Carnegie Steel Co., Pittsburgh, Pa.
Hose.
 Bureks Fire Hose Mfg. Co., New York, N. Y.
 N. J. Car Spring & Rubber Co., Jersey City, N. J.
Hotels.
 Great Southern Hotel, Gulfport, Miss.
 Hotel Essex, Boston, Mass.
 St. Charles Hotel, New Orleans, La.
Hot Water Service Heaters.
 Alberger Pump Co., New York, N. Y.
Hydrants.
 Bourbon Copper & Brass Wks. Co., Cincinnati, O.
 Columbian Iron Works, Chattanooga, Tenn.
 Glamorgan Pipe & Foundry Co., Lynchburg, Va.
 Goulds Mfg. Co., Seneca Falls, N. Y.
 Kennedy Valve Mfg. Co., Elmira, N. Y.
 Myers & Bro., F. M., Ashland, O.
 Wood & Co., R. D., Philadelphia, Pa.
Hydraulic Giants.
 American Spiral Pipe Works, Chicago, Ill.
Hydraulic Rams.
 Goulds Mfg. Co., Seneca Falls, N. Y.
 Rife Engine Co., New York, N. Y.
Ice-making Machinery and Supplies.
 Columbus Iron Works Co., Columbus, Ga.
 Creamery Package Mfg. Co., De Kalb, Ill.
 Frick Co., The, Waynesboro, Pa.
 Hague, John, St. Louis, Mo.
 Remington Machine Co., Wilmington, Del.
 Reummler-Dawley Mfg. Co., St. Louis, Mo.
 Tait-Nordmeyer Eng. Co., St. Louis, Mo.
 Vilter Mfg. Co., Milwaukee, Wis.
 Vort Machine Co., Henry, Louisville, Ky.
 York Mfg. Co., York, Pa.
Incorporators. (Companies.)
 Delaware Trust Co., Wilmington, Del.
Industrial, Agricultural and Commercial Opportunities.
CITIES AND TOWNS.
 Atlanta, Ga., Ga. Bureau of Indus. & Inn. Bldg.
 Baltimore, Md., Gas & Electric Co.
 Bedford City, Va., Board of Trade.
 Fayetteville, N. C., Chamber of Commerce.
 Newport News, Va., Old Dominion Land Co.
 Texas City, Tex., Texas City Transportation Co.
 Winchester, Va., Business Men's League.
RAILROADS.
 Atlanta, Birm'gh'm & Atlantic R. R., Atlanta, Ga.
 Atlanta & West Point R. R. Co., Montgomery, Ala.
 Baltimore & Ohio Railroad, Baltimore, Md.
 Carolina, Clinchfield & O. Ry., Johnson City, Tenn.
 Central of Georgia Ry. Co., Savannah, Ga.
 Florida East Coast Ry., St. Augustine, Fla.
 Illinois Central Railroad Co., Chicago, Ill.
 Norfolk & Western Railway, Roanoke, Va.
 Richmond, Fredericksburg & Potomac Railroad, Va.
 Seaboard Air Line, Portsmouth, Va.
 Southern Railway Co., Washington, D. C.
 Tennessee Central Railroad Co., Cookeville, Tenn.
 Virginia Railway & Power Co., Richmond, Va.
Industrial Track Work. [See Railways, Ind.]
Injectors.
 Jenkins Bros., New York, N. Y.
 Sellers & Co., Inc., Wm., Philadelphia, Pa.
Insulating Materials.
 Johns-Manville Co., H. W., New York, N. Y.
Insurance.
 Hartford Fire Insurance Co., Hartford, Conn.
 Hartford Steam Boiler Inspection & Ins. Co., Hartford, Conn.
 Maryland Casualty Co., Baltimore, Md.
Interior Trim. (Metallic.)
 Dahlstrom Metallic Door Co., Jamestown, N. Y.
 U. S. Metal Products Co., New York, N. Y.
Interstate Commerce Practices.
 Van Sant, Frank, Washington, D. C.
Iron.
 Alabama Con. Coal & Iron Co., Birmingham, Ala.
 American Rolling Mill Co., Middletown, O.
 La Belle Iron Works, Steubenville, O.
 Milton Mfg. Co., Milton, Pa.
 Oliver Iron & Steel Co., Pittsburgh, Pa.
 Republic Iron & Steel Co., Youngstown, O.
 Tennessee Coal, Iron & R. R. Co., B'gh'm, Ala.
 Wood Iron & Steel Co., Alan, Philadelphia, Pa.
Irrigation Machinery.
 Blakeslee Mfg. Co., Du Quoin, Ill.
 Cameron Steam Pump Wks., A. S., New York, N. Y.
Journals. (Financial.)
 Financial Review, New York, N. Y.
Kettles. (Drossing, Tinning, Smelting.)
 Wilford Iron Works Co., Millard F., Philadelphia, Pa.
Kettles. (Steam Jacket.)
 Badger & Sons Co., E. B., Boston, Mass.
 Petroleum Iron Works Co., Sharon, Pa.
Key Seater. (Portable.)
 Burr & Son, John T., Brooklyn, N. Y.
Knitting Machinery.
 Acme Knitting Machine & Needle Co., Franklin Falls, N. H.
Lacquers. (All Purposes.)
 Durlacher Mfg. Co., St. Louis, Mo.
Lamp Posts. (Electric, Gas.)
 Western Gas Construction Co., Ft. Wayne, Ind.
Lamps. (Arc and Incandescent.)
 Boston Incandescent Lamp Co., Danvers, Mass.
 Columbia Incandescent Lamp Co., St. Louis, Mo.
 Fostoria Incandescent Lamp Co., Fostoria, O.
 General Electric Co., Schenectady, N. Y.
 Kentucky Electrical Co., Owensboro, Ky.
 Lee Electric Co., Baltimore, Md.
 Piedmont Electric Co., Asheville, N. C.
 Western Electric Co., New York, N. Y.
 Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.
Lamps. (Incandescent.)
 Barr, J. H. C., Philadelphia, Pa.
 Fendig & Co., Albert, Brunswick, Ga.
 Kimbrough & Co., J. T., Atlanta, Ga.
 Nubbaum & Co., S. L., Norfolk, Va.
Lathe. (Expanded Metal.)
 Carolina Portland Cement Co., Charleston, S. C.
 Milwaukee Corrugating Co., Milwaukee, Wis.

- Lathes. (Machine.)**
Gruve, Klueman & Co., Cincinnati, O.
Manning, Maxwell & Moore, Inc., New York, N. Y.
- Lawn Furniture.**
Hill Iron & Wire Works, J. M., Detroit, Mich.
Peters & Co., Baltimore, Md.
Peters, Baggott & Co., Baltimore, Md.
- Leadite.**
Leadite Co., The, Philadelphia, Pa.
- Lighting Equipment.**
Hobbs Co., Newark, Ohio.
- Lime.**
Gardens Portland Cement Co., Charleston, S. C.
Security Cement & Lime Co., Baltimore, Md.
Northwestern Lime & Cement Co., Charleston, S. C.
Tidewater Portland Cement Co., Baltimore, Md.
- Lime. (Hydrated.)**
Security Cement & Lime Co., Baltimore, Md.
Tidewater Portland Cement Co., Baltimore, Md.
- Lime Kilns and Equipment.**
Improved Equipment Co., New York, N. Y.
- Limestone Products.**
Security Cement & Lime Co., Baltimore, Md.
- Liquor Filters.**
International Filter Co., Chicago, Ill.
- Lithographers, Engravers.**
Young & Seiden Co., Baltimore, Md.
- Loans.**
Aneta Realization Co., Chicago, Ill.
- Lockers. (Metal.)**
Kegley Metal Ceiling Mfg. Co., S., Pittsburg, Pa.
- Locomotives.**
INDUSTRIAL.
American Locomotive Co., New York, N. Y.
Baldwin Locomotive Works, The, Philadelphia, Pa.
Bryn Mawr Co., John F., Ravens, O.
Chas. Mfg. Co., Corry, Pa.
Davenport Locomotive Works, Davenport, Ia.
Hobbs Locomotive Works, Erie, Pa.
Jeffrey Mfg. Co., Columbus, O.
Lima Locomotive & Machine Co., Lima, O.
Miles Co., Cincinnati, O.
Peters Co., H. K., Pittsburg, Pa.
Valon Iron Works, Wilkes-Barre, Pa.
- RAILWAY.**
American Locomotive Co., New York, N. Y.
Baldwin Locomotive Works, The, Philadelphia, Pa.
Lima Locomotive & Machine Co., Lima, O.
Miles Co., Cincinnati, O.
Southern Supply Co., Norfolk, Va.
- Looms and Weaving Machinery.**
Super Co., Hopedale, Mass.
Mass Machine Works, Taunton, Mass.
- Lubricants.**
Alamy Lubricating Co., New York, N. Y.
- Lumber.**
Industrial Lumber Co., Elizabeth, La.
Mason & Felton Lumber Co., Macon, Ga.
- Lumber. (Heavy Construction, Pitch Pine, etc.)**
Mason & Felton Lumber Co., Macon, Ga.
Industrial Lumber & Creosote Co., Texarkana, Ark.
Taylor & Co., S. E., Gulfport, Miss.
- Lumber. (Yellow Pine.)**
Industrial Lumber Co., Elizabeth, La.
- Lumber Buggies.**
Sole Steam Feed Works, Meridian, Miss.
- Lumber Stackers.**
Sole Steam Feed Works, Meridian, Miss.
- Machinery. (Special.)**
Bliss Co., E. W., Brooklyn, N. Y.
Bliss, Lewis T., Alpena, Mich.
Lester & Co., Charles, Brooklyn, N. Y.
Oil City Boiler Co., Oil City, Pa.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Ryersford Fdry. & Mach. Wks., Ryersford, Pa.
Stratton & Bragg Co., Petersburg, Va.
Universal Telegraphic Co., Baltimore, Md.
- Machinery and Supplies. (New and Second-Hand Bargains.)**
Baton Iron & Metal Co., Baltimore, Md.
Brown, Jas. H., Brooklyn, N. Y.
Chicago House Wrecking Co., Chicago, Ill.
Cleveland Belting & Machinery Co., Cleveland, O.
Dunbar Railway Equipment Co., Chicago, Ill.
Dunets & Son, New York, N. Y.
Hill's Sons Co., Henry A., Philadelphia, Pa.
Hill Bros. & Co., New York, N. Y.
Hilshans, H., Pittsburgh, Pa.
Leman, Charles T., Birmingham, Ala.
Lemon & Co., E., Philadelphia, Pa.
Linton, W. J., New York, N. Y.
Lodge & Shipley Machine Tool Co., Cincinnati, O.
Marine Metal & Supply Co., New York, N. Y.
Miles Iron & Metal Co., G., St. Louis, Mo.
Plasmonger Engineering Co., Chicago, Ill.
Pickett Co., Inc., H. W., Philadelphia, Pa.
Pike & Contractors' Supply Co., New York, N. Y.
Pittsburgh Mch. & Equip. Co., Pittsburgh, Pa.
Preston Tool & Supply Co., New York, N. Y.
Rendle Machinery Co., Cincinnati, O.
Reed Co., Howard W., Philadelphia, Pa.
Ressel, Frank, Philadelphia, Pa.
Seyfert's Sons, Inc., L. F., Philadelphia, Pa.
Southern Supply Co., Norfolk, Va.
Tampa Machinery Exchange, Tampa, Fla.
Tampa Supply Co., Beaumont, Tex.
Towery, Frank, Philadelphia, Pa.
Winter Co., Herman L., Philadelphia, Pa.
Tearley, Thomas, Philadelphia, Pa.
- Machine Tools.**
Gruve, Klueman & Co., Cincinnati, O.
Manning, Maxwell & Moore, Inc., New York, N. Y.
- Machinists. (Engineers.)**
American Mch. & Mfg. Co., Charlotte, N. C.
Bacon Iron Works, Inc., Roanoke, Va.
Bramton & Bragg Co., Petersburg, Va.
Universal Telegraphic Co., Baltimore, Md.
- Magnesia Materials.**
John-Manville Co., H. W., New York, N. Y.
- Magnesite. (Dead Burned.)**
Kashner-Walker Refractories Co., Pittsburg, Pa.
- Magnet Electro. (For Cottonseed, Linters and Others.)**
Wale Electro Magnet Co., Memphis, Tenn.
- Magnetic Separators.**
Peters Co., J. W., Philadelphia, Pa.
- Mail Chutes.**
Oster Mail Chute Co., Rochester, N. Y.
- Mantles. (Wooden.)**
Richman Mantel Co., W. J., Memphis, Tenn.
- Marble Work. (Interior.)**
Dagostin & Angelini Bros., Montgomery, Ala.
Southern Mosaic Tile Co., Birmingham, Ala.
- Masonry Dams.**
Multiple Arch Hydraulic Const. Co., Ltd., Spar-tanburg, S. C.
- Mechanical Draft.**
American Blower Co., Detroit, Mich.
Buffalo Steam Pump Co., Buffalo, N. Y.
Sturtevant Co., B. F., Hyde Park, Mass.
- Metal Ceilings. [See Ceilings, Metal.]**
- Metaline.**
North Amer. Metaline Co., Long Island City, N. Y.
- Metal Culverts. [See Culverts.] (Corrugated Metal.)**
- Metal Polish.**
Hoffman, Geo. W., Indianapolis, Ind.
- Metal Shingles.**
Burris & Co., John T., Anderson, S. C.
Chattanooga Rfg. & Fdry. Co., Chattanooga, Tenn.
Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.
Cortright Metal Roofing Co., Philadelphia, Pa.
Edwards Manufacturing Co., Cincinnati, O.
Hyndman Roofing Co., Cincinnati, O.
- Metal Window Frames and Sashes.**
Detroit Steel Products Co., Detroit, Mich.
Edwards Mfg. Co., The, Cincinnati, O.
Keighley Metal Cell. & Mfg. Co., S., Pittsburg, Pa.
United States Metal Products Co., New York, N. Y.
Voigtman & Co., Chicago, Ill.
- Metal Work. (Stamped and Embossed Metal Checks, Key Tags, etc.)**
American Railway Supply Co., New York, N. Y.
- Metal-Working Machinery.**
Bertsch & Co., Cambridge City, Ind.
Bliss Co., E. W., Brooklyn, N. Y.
Gibbs Machinery Co., Columbia, S. C.
Lester & Co., Chas., Brooklyn, N. Y.
Price Machinery Co., S. M., Norfolk, Va.
Ryersford Fdry. & Mach. Co., Ryersford, Pa.
- Micrometers, Calipers, Etc.**
Starrett Co., L. S., Athol, Mass.
- Milk Filters. (Liquor, Milk, etc.)**
International Filter Co., Chicago, Ill.
- Mill Engineers and Architects.**
Lockwood, Greene & Co., Boston, Mass.
Srinne, J. E., Greenville, S. C.
- Mill Supplies.**
Appomattox Iron Wks. & Sup. Co., Petersburg, Va.
Bailey-Lebby Co., Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
Gainesville Iron Works, Gainesville, Ga.
Greenwald Co., I. & E., Cincinnati, O.
Lindsay, J. L., Inc., Richmond, Va.
Lombard Iron Works, Augusta, Ga.
Manning, Maxwell & Moore, Inc., New York, N. Y.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
Nordyke & Marmoon Co., Indianapolis, Ind.
Salem Foundry & Machine Works, Salem, Va.
Smith-Courtney Co., Richmond, Va.
Starr Co., B. F., Baltimore, Md.
Stratton & Bragg Co., Petersburg, Va.
Ward-Beck Co., Washington, D. C.
Wolf Co., Chambersburg, Pa.
- Mining Machinery. (Gold, Copper, Plate, etc.)**
Bartlett & Snow Co., C. O., Cleveland, O.
Jeffrey Mfg. Co., Columbus, O.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
Mecklenburg Iron Works, Charlotte, N. C.
Power & Mining Machinery Co., Cudahy, Wis.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
- Mixer Machinery.**
Smith Co., T. L., Atlanta, Ga.
- Mixing Machinery.**
Dunning, W. D., Syracuse, N. Y.
Lynn-Superior Co., The, Cincinnati, O.
- Mortar Colors.**
Chattanooga Paint Co., Chattanooga, Tenn.
- Motor Trucks.**
International Motor Co., New York, N. Y.
- Mouldings, Casings, etc.**
Mason & Felton Lumber Co., Macon, Ga.
- Nails and Spikes.**
American Steel & Wire Co., Chicago, Ill.
Hoffman & Co., R. C., Baltimore, Md.
Republic Iron & Steel Co., Youngstown, O.
West Virginia Rail Co., The, Huntington, W. Va.
Youngtown Sheet & Tube Co., Youngstown, O.
- Nitre Pots, Eggs.**
Pratt Engineering & Mach. Co., Atlanta, Ga.
- Nuts. [See Bolts, Nuts, Rivets, etc.]**
- Office Furniture.**
Rose & Thompson, Baltimore, Md.
- Oils. (Lubricating, etc.)**
Albany Lubricating Co., New York, N. Y.
Borne-Brynmair Co., New York, N. Y.
Galea Signal Oil Co., Franklin, Pa.
Gulf Refining Co., Pittsburg, Pa.
Robinson & Son Co., Wm. C., Baltimore, Md.
Texas Co., The, New York, N. Y.
- Oil-Burning Appliances.**
Petroleum Iron Works Co., Sharon, Pa.
- Oil Cans.**
Wall Mfg. Supply Co., F., Allegheny, Pa.
- Oil Engines. [See Engines (Oil).]**
- Oil Separators.**
Stewart Heater Co., Buffalo, N. Y.
- Oil Stones.**
Carborundum Co., Niagara Falls, N. Y.
Worton Co., Worcester, Mass.
- Oil-Well Machinery.**
Keystone Steam Well Mach. Co., Beaver Falls, Pa.
Williams Bros., Ithaca, N. Y.
- Ore Briquetting Machinery.**
Devillers, Robert, Brooklyn, N. Y.
- Ornamental Iron Work.**
Belmont Iron Works, Inc., Philadelphia, Pa.
Bolles Iron & Wire Works, J. M., Detroit, Mich.
Chattanooga Iron & Wire Wks., Chattanooga, Tenn.
Chesapeake Iron Works, Baltimore, Md.
Dow Wire Works Co., Louisville, Ky.
Ohio Elevator & Machine Co., The, Columbus, O.
Roanoke Iron Works, Inc., Roanoke, Va.
Schreiber & Sons Co., The, L., Cincinnati, O.
Sneed Architectural Iron Works, Louisville, Ky.
Southern Wire & Iron Mfg. Co., Dallas, Tex.
- Packing. (Asbestos, Metallic, Rubber, Leather, etc.)**
American Huhn Packing Co., New York, N. Y.
Jenkins Bros., New York, N. Y.
John-Manville Co., H. W., New York, N. Y.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Power Specialty Co., New York, N. Y.
- Paint. (Bridge.)**
Detroit Graphite Co., Detroit, Mich.
Dixon Crucible Co., Jos., Jersey City, N. J.
Linsine Co., Philadelphia, Pa.
National Roofing Co., Tonawanda, N. Y.
- Paints. (Cold Water.)**
Wilhelm Co., A., New York, N. Y.
- Paint. (Metal Preservative.)**
Detroit Graphite Co., Detroit, Mich.
Linsine Co., Philadelphia, Pa.
National Roofing Co., Tonawanda, N. Y.
Wilhelm Co., A., New York, N. Y.
- Paint. (Roofing, Building, etc.)**
Armitage Mfg. Co., The, Richmond, Va.
Cameron & Barkley Co., Charleston, S. C.
Carter & Portland Cement Co., Charleston, S. C.
Chattanooga Paint Co., Chattanooga, Tenn.
Detroit Graphite Co., Detroit, Mich.
Dixon Crucible Co., Jos., Jersey City, N. J.
Glidden Varnish Co., Cleveland, O.
Linsine Co., Philadelphia, Pa.
National Roofing Co., Tonawanda, N. Y.
Standard Paint Co., New York, N. Y.
Wilhelm Co., A., New York, N. Y.
- Painting. (Contractors for Bridges, Buildings, etc.)**
Dinaco & Bro., A., Pittsburg, Pa.
- Paint-making Machinery.**
Campbell, P. F., Philadelphia, Pa.
Lynn Superior Co., The, Cincinnati, O.
- Paper. (Roofing, Building, Sheathing, etc.)**
Armitage Mfg. Co., Richmond, Va.
Barrett Mfg. Co., Philadelphia, Pa.
Cameron & Barkley Co., Charleston, S. C.
Southeastern Lime & Cement Co., Charleston, S. C.
Standard Roofing Co., Tulsa, Okla.
- Passenger Coach Steps. (Extension.)**
Blake Car Step Works, Charlotte, N. C.
- Patent Attorneys.**
Brown, Eugene G., Washington, D. C.
Chandler & Co., H. E., Washington, D. C.
Chandler & Chandler, Washington, D. C.
Evans & Co., Victor J., Washington, D. C.
Owen, Richard B., Washington, D. C.
- Patterns.**
Roanoke Iron Works, Inc., Roanoke, Va.
- Pavement Filler.**
Barrett Mfg. Co., Philadelphia, Pa.
- Paving. (Contractors for Creosoted Wood Block.)**
Creosoted Wood Block Pav. Co., New Orleans, La.
- Paving Blocks. (Granite.)**
Harris Granite Quarries Co., Salisbury, N. C.
- Paving Blocks. (Wood Creosote-Resinate.)**
Gulfport Creosoting Co., Gulfport, Miss.
Southern Wood Preserving Co., Atlanta, Ga.
U. S. Wood Preserving Co., New York, N. Y.
- Paving Brick.**
Carlyle Paving Brick Co., Portsmouth, O.
Copeland-Ingis Shale Brick Co., Birmingham, Ala.
- Paving Machines. (Bituminous Materials.)**
Smith Co., T. L., Atlanta, Ga.
- Perforated Metal.**
Caldwell & Son, H. W., Chicago, Ill.
Cross Engineering Co., Carbondale, Pa.
Eddie Perforating Co., Rochester, N. Y.
Hendrick Mfg. Co., The, Carbondale, Pa.
Mundt & Sons, Charles, Jersey City, N. J.
- Perspectives. (Water Color, for Architects.)**
Alger & Smith, Atlanta, Ga.
- Petroleum Refiners.**
Gulf Refining Co., Pittsburg, Pa.
Standard Oil Co., Cincinnati, O.
- Phosphate Machinery.**
Aising Engineering Co., J. R., New York, N. Y.
American Process Co., New York, N. Y.
Bailey-Lebby Co., The, Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
Link-Belt Co., Nicetown (Philadelphia), Pa.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
Pratt Engineering & Mach. Co., Atlanta, Ga.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Walk & Murdoch Iron Works, Charleston, S. C.
Walker & Elliott, Wilmington, Del.
- Phosphor-Bronze. (Wire Rods, Sheets.)**
Phosphor-Bronze Smelting Co., Philadelphia, Pa.
- Photo-Engravers.**
Baltimore Maryland Engr. Co., Baltimore, Md.
- Pig Iron.**
Alabama Coal & Iron Co., Birmingham, Ala.
La Belle Iron Works, Steubenville, O.
Republic Iron & Steel Co., Youngstown, O.
Rogers, Brown & Co., Cincinnati, O.
Tennessee Coal, Iron & R. R. Co., B'm'gh'm, Ala.
- Pile Drivers.**
Bucyrus Co., Milwaukee, Wis.
Valcan Iron Works, Chicago, Ill.
- Pinning. (Creosoted.)**
Gulfport Creosoting Co., Gulfport, Miss.
Intern'l Creosoting & Const. Co., Galveston, Tex.
Southern Creosoting Co., Ltd., B'dell, La.
- Pillow Blocks.**
Caldwell Co., Inc., W. E., Louisville, Ky.
Dodge Manufacturing Co., Mishawaka, Ind.
Golden's Foundry & Machine Co., Columbus, Ga.
- Pine Tar.**
Atlantic Turpentine & Refin'g Co., Savannah, Ga.
- Pipe. (Cast Iron.)**
American Cast Iron Pipe Co., Birmingham, Ala.
American Pipe & Construction Co., Phila., Pa.
Giamorgan Pipe & Foundry Co., Lynchburg, Va.
McWane Pipe Works, Lynchburg, Va.
U. S. Cast Iron Pipe & Fdry. Co., New York, N. Y.
Wood & Co., R. D., Philadelphia, Pa.
- Pipe. (Coll.)**
Columbus Iron Works Co., Columbus, Ga.
Frick Co., The, Waynesboro, Pa.
National Pipe Bending Co., New Haven, Conn.
Whitlock Coil Pipe Co., Hartford, Conn.
York Mfg. Co., York, Pa.
- Pipe. (Corrugated Culvert.)**
American Rolling Mill Co., Middletown, O.
Canton Culvert Co., The, Canton, O.
Dixie Culvert & Metal Co., Atlanta, Ga.
Gallon Iron Works Co., Gallon, O.
Harry Steel Co., O. K., St. Louis, Mo.
Kentucky Culvert Mfg. Co., Buechel, Ky.
North Carolina Metal Culv. Co., Greensboro, N. C.
Virginia Metal Culvert Co., Roanoke, Va.
Virginia Railway Supply Co., Norfolk, Va.
- Pipe. (Riveted.)**
Abendroth & Root Mfg. Co., Newburgh, N. Y.
Keeler Co., E., Williamsport, Pa.
Petroleum Iron Works Co., Sharon, Pa.
Ruemmel-Dawley Mfg. Co., St. Louis, Mo.
- Pipe. (Spiral Riveted.)**
Abendroth & Root Mfg. Co., Newburgh, N. Y.
American Spiral Pipe Works, Chicago, Ill.
- Pipe. (Wood.)**
Wyckoff & Son Co., A., Elmira, N. Y.
- Pipe. (Wrought.)**
La Belle Iron Works, Steubenville, O.
National Tube Co., Pittsburg, Pa.
Youngtown Sheet & Tube Co., Youngstown, O.
- Pipe Bends.**
Columbus Iron Works Co., Columbus, Ga.
Whitlock Coil Pipe Co., Hartford, Conn.
- Pipe Covering. (Steam.)**
John-Manville Co., H. W., New York, N. Y.
Southern Pipe Covering Co., Inc., Richmond, Va.
Wyckoff & Son Co., A., Elmira, N. Y.
- Pipe Cutting and Threading Machinery.**
Saunders' Sons, D., Yonkers, N. Y.
- Pipe Fittings.**
American Cast Iron Pipe Co., Birmingham, Ala.
Columbus Iron Works Co., Columbus, Ga.
York Mfg. Co., York, Pa.
- Pipe Jo'nting. (Gas and Water Main.)**
Leadite Co., The, Philadelphia, Pa.
- Pipe Locator.**
Modern Iron Works, Quincy, Ill.
- Pipe Unions and Joints.**
Dart Mfg. Co., E. M., Providence, R. I.
National Tube Co., Pittsburg, Pa.
Whitlock Coil Pipe Co., Hartford, Conn.
- Pipe Wrenches and Cutters.**
Saunders' Sons, D., Yonkers, N. Y.
- Pitch.**
Barrett Mfg. Co., Philadelphia, Pa.
- Planers. (Metal.)**
Manning, Maxwell & Moore, Inc., New York, N. Y.
- Planing Mill Work.**
Mason & Felton Lumber Co., Macon, Ga.
- Plaster of Paris.**
King & Co., J. B., New York, N. Y.
- Plaster.**
Security Cement & Lime Co., Baltimore, Md.
- Plaster. (Asbestos Cement, Plaster of Paris.)**
King & Co., J. B., New York, N. Y.
- Plaster Boards.**
Hercules Plaster Board Co., Hampton, Va.
King & Co., J. B., New York, N. Y.
- Plaster Machinery.**
Bartlett & Snow Co., C. O., Cleveland, O.
- Plates.**
Cincinnati Iron & Steel Co., Cincinnati, O.
Wood Iron & Steel Co., Alan, Philadelphia, Pa.
- Plugs. (Wall.)**
Wicks Mfg. Co., Milton O., Glen Cove, N. Y.
- Pneumatic Tools. [See Tools—Pneumatic.]**
- Polishing Machinery. (Wheels and Blocks.)**
Abrasive Material Co., Philadelphia, Pa.
Carborundum Co., Niagara Falls, N. Y.
Vitrified Wheel Co., Westfield, Mass.
- Power Transmission Machinery.**
Bailey-Lebby Co., Charleston, S. C.
Brown Co., A. & F., New York, N. Y.
Caldwell Co., Inc., W. E., Louisville, Ky.
Caldwell & Son Co., H. W., Chicago, Ill.
Crescon Co., Geo. V., Philadelphia, Pa.
Dayton Globe Iron Works Co., Dayton, O.
Dodge Manufacturing Co., Mishawaka, Ind.
Golden's Foundry & Machine Co., Columbus, Ga.
Greenwald Co., I. & E., Cincinnati, O.
Jeffrey Mfg. Co., Columbus, O.
Jones & Laughlin Steel Co., Pittsburg, Pa.
Lane Mfg. Co., Montpelier, Vt.
Lindsay, J. L., Inc., Richmond, Va.
Link-Belt Co., Nicetown (Philadelphia), Pa.
More Chain Co., Ithaca, N. Y.
Nordyke & Marmoon Co., Indianapolis, Ind.
Pools Engineering & Machine Co., Baltimore, Md.
Positive Clutch & Pulley Works, Buffalo, N. Y.
Price Machinery Co., S. M., Norfolk, Va.
Schofield's Sons Co., J. S., Macon, Ga.
Wolf Co., The, Chambersburg, Pa.
Wood's Sons Co., T. B., Chambersburg, Pa.
- Presses. (Balling, Cottonseed Oil, etc., Hydraulic and Power.)**
Boomer & Boechert Press Co., Syracuse, N. Y.
Cardwell Machine Co., Richmond, Va.
Continental Gln Co., Birmingham, Ala.
Gibbs Machinery Co., Columbia, S. C.
- Presses. (Stamping.)**
Bliss Co., E. W., Brooklyn, N. Y.
Lester & Co., Charles, Brooklyn, N. Y.
- Preventive for Sap Stain.**
Church & Dwight Co., New York, N. Y.
- Printers. (Book, Catalog, Job, etc.)**
Fleet-McGinley Co., Baltimore, Md.

- Promoters.**
Assets Realization Co., Chicago, Ill.
Electric Bond & Share Co., New York.
- Protector Steel.** (Concrete Curb, Steps, etc.)
Steel Protected Concrete Co., Philadelphia, Pa.
- Pulleys.** (Friction Clutch.)
Brown Co., A. & F., New York, N. Y.
Caldwell Co., Inc., W. E., Louisville, Ky.
Caldwell & Son Co., H. W., Chicago, Ill.
Crescon Co., Geo. V., Philadelphia, Pa.
Dodge Manufacturing Co., Mishawaka, Ind.
Poole Engineering & Machine Co., Baltimore, Md.
Positive Clutch & Pulley Works, Buffalo, N. Y.
Sinclair-Scott Co., Baltimore, Md.
Woods' Sons Co., T. B., Chambersburg, Pa.
- STEEL SPLIT.**
American Pulley Co., Philadelphia, Pa.
Dodge Manufacturing Co., Mishawaka, Ind.
- WOOD SPLIT.**
Caldwell Co., Inc., W. E., Louisville, Ky.
Caldwell & Son Co., H. W., Chicago, Ill.
Dodge Manufacturing Co., Mishawaka, Ind.
Lane Mfg. Co., Montpelier, Vt.
Positive Clutch & Pulley Works, Buffalo, N. Y.
Saginaw Mfg. Co., Saginaw, Mich.
Salem Foundry & Machine Works, Salem, Va.
- Pulleys, Shafting and Hangers.**
Caldwell Co., Inc., W. E., Louisville, Ky.
Caldwell & Son Co., H. W., Chicago, Ill.
Crescon Co., Geo. V., Philadelphia, Pa.
Dodge Manufacturing Co., Mishawaka, Ind.
Golden's Foundry & Machine Co., Columbus, Ga.
Greenwald Co., I. & M., Cincinnati, O.
Jeffrey Mfg. Co., Columbus, O.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Lane Mfg. Co., Montpelier, Vt.
Link-Belt Co., Nictown (Philadelphia), Pa.
Mordyke & Marmon Co., Indianapolis, Ind.
Poole Engineering & Machine Co., Baltimore, Md.
Positive Clutch & Pulley Works, Buffalo, N. Y.
Standard Roller Bearing Co., Philadelphia, Pa.
Woods' Sons Co., T. B., Chambersburg, Pa.
- Pumps.** (Centrifugal.)
Alberger Pump Co., New York, N. Y.
Buffalo Steam Pump Co., Buffalo, N. Y.
De Laval Steam Turbine Co., Trenton, N. J.
Emerson Steam Pump Co., Alexandria, Va.
Erie Pump & Engine Works, Erie, Pa.
Goulds Mfg. Co., Seneca Falls, N. Y.
Haydon Pump Co., Quincy, Ill.
Morris Machine Works, Baldwinville, N. Y.
Wood & Co., R. D., Philadelphia, Pa.
Worthington, H. R., New York, N. Y.
- Pumps.** (Deep Well.)
McGowan Co., John H., Cincinnati, O.
- Pumps.** (Hydraulic.)
Buffalo Steam Pump Co., Buffalo, N. Y.
Caldwell Machine Co., Richmond, Va.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Emerson Steam Pump Co., Alexandria, Va.
Erie Pump & Engine Works, Erie, Pa.
Goulds Mfg. Co., Seneca Falls, N. Y.
Worthington, H. R., New York, N. Y.
- Pumps.** (Lift and Force.)
Goulds Mfg. Co., Seneca Falls, N. Y.
Ingersoll-Rand Co., New York, N. Y.
- Pumps.** (Odorous and Excavating.)
Goulds Mfg. Co., Seneca Falls, N. Y.
- Pumps.** (Pneumatic.)
Ingersoll-Rand Co., New York, N. Y.
- Pumps.** (Boiler Feed.)
Alberger Pump Co., New York, N. Y.
Camerson Steam Pump Wks., A. S., New York, N. Y.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Goulds Mfg. Co., Seneca Falls, N. Y.
McGowan Co., John H., Cincinnati, O.
Moffatt Machinery Mfg. Co., Charlotte, N. C.
Murray Iron Works Co., Burlington, Ia.
Myers & Bros., E. Ashland, O.
Union Steam Pump Co., Battle Creek, Mich.
Worthington, H. R., New York, N. Y.
- Pumps.** (Rotary.)
Goulds Mfg. Co., Seneca Falls, N. Y.
- Pumps.** (Steam.)
Blakelee Mfg. Co., Du Quoin, Ill.
Buffalo Steam Pump Co., Buffalo, N. Y.
Camerson Steam Pump Wks., A. S., New York, N. Y.
Camerson & Barkley Co., Charleston, S. C.
Cook Well Co., The, St. Louis, Mo.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Dean Steam Pump Co., Holyoke, Mass.
Gardner Governor Co., Quincy, Ill.
Gibbes Machinery Co., Columbus, S. C.
Goulds Mfg. Co., Seneca Falls, N. Y.
Hoover, Owen, Rentschler Co., Hamilton, O.
Keystone Pump & Well Engine Co., Beaver Falls, Pa.
Keystone Pump & Well Eng. Co., Beaver Falls, Pa.
McGowan Co., John H., Cincinnati, O.
Murray Iron Works Co., Burlington, Ia.
Price Machinery Co., S. M., Norfolk, Va.
Sydnor Pump & Well Co., Richmond, Va.
Union Steam Pump Co., Battle Creek, Mich.
Worthington, H. R., New York, N. Y.
- Pumps.** (Trench.)
Goulds Mfg. Co., Seneca Falls, N. Y.
- Pumps.** (Vacuum.)
Alberger Pump Co., New York, N. Y.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Goulds Mfg. Co., Seneca Falls, N. Y.
Smith Co., T. L., Atlanta, Ga.
Union Steam Pump Co., Battle Creek, Mich.
- Pumps.** (Water-works.)
McGowan Co., John H., Cincinnati, O.
- Pumping Machinery.**
Allis-Chalmers Co., Milwaukee, Wis.
Blakelee Mfg. Co., Du Quoin, Ill.
Camerson Steam Pump Wks., A. S., New York, N. Y.
Cook Well Co., The, St. Louis, Mo.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Dean Steam Pump Co., Holyoke, Mass.
Deming Co., Salem, O.
Erie Pump and Engine Works, Erie, Pa.
Fairbanks, Morse & Co., Chicago, Ill.
Goulds Mfg. Co., Seneca Falls, N. Y.
Hoover, Owen, Rentschler Co., Hamilton, O.
Keystone Pump & Well Eng. Co., Beaver Falls, Pa.
McGowan Co., John H., Cincinnati, O.
Moffatt Machinery Mfg. Co., Charlotte, N. C.
Murray Iron Works Co., Burlington, Ia.
Price Machinery Co., S. M., Norfolk, Va.
Sydnor Pump & Well Co., Richmond, Va.
Union Steam Pump Co., Battle Creek, Mich.
Wood & Co., R. D., Philadelphia, Pa.
Worthington, H. R., New York, N. Y.
- Punching and Shearing Machinery.**
Bertsch & Co., Cambridge City, Ind.
Bilas Co., E. W., Brooklyn, N. Y.
Boyerford Foundry & Mach. Co., Boyerford, Pa.
- Pyrites Burners.**
Pratt Engineering & Mach. Co., Atlanta, Ga.
- Quarrying and Stonecutting Machinery.**
Ingersoll-Rand Co., New York, N. Y.
- Railings, Grilles, etc. (Brass.)**
McKenna Bros. Brass Co., Pittsburgh, Pa.
- Railroads.** (Agricultural and Industrial Opportunities.) [See Industrial, Agricultural and Commercial Opportunities.]
- Railroad Equipment and Supplies.** (New and Second-hand.)
American Frog & Switch Co., Hamilton, O.
American Locomotive Co., New York, N. Y.
American Valve & Meter Co., Cincinnati, O.
Baldwin Locomotive & Supply Co., Chicago, Ill.
Baldwin Equipment & Supply Co., Chicago, Ill.
Benjamin Equip. Co., Harry, St. Louis, Mo.
Birmingham Rail & Loco. Co., Birmingham, Ala.
Boston Iron & Metal Co., Baltimore, Md.
Cincinnati Frog & Switch Co., Cincinnati, O.
Foster Co., L. B., Pittsburgh, Pa.
Georgia Car & Locomotive Co., Atlanta, Ga.
Hoffman & Co., R. C., Baltimore, Md.
Hyman-Michaels Co., Chicago, Ill.
Indiana Steel & Iron Co., Pittsburgh, Pa.
Kilby Frog & Switch Co., Birmingham, Ala.
Macleary, J. H., Suffolk, Va.
Males Co., Cincinnati, O.
Manning, Maxwell & Moore, Inc., New York, N. Y.
Maryland Equipment & Supply Co., Baltimore, Md.
Mathes Iron & Metal Co., G. St. Louis, Mo.
May & Turner Co., Atlanta, Ga.
National Iron & Steel Co., Houston, Tex.
Newhall Eng. Co., Geo. M., Philadelphia, Pa.
Pickett Co., Inc., H. W., Philadelphia, Pa.
Q & O Co., New York, N. Y.
Read Co., Howard W., Philadelphia, Pa.
Robinson & Orr, Pittsburgh, Pa.
Sherwood, E. C., New York, N. Y.
Smith-Courtney Co., Richmond, Va.
Southern Iron & Equipment Co., Atlanta, Ga.
Southern Supply Co., Norfolk, Va.
Steel Rail Supply Co., New York, N. Y.
United States Rail Co., Cumberland, Md.
Vulcan Iron Works, Wilkes-Barre, Pa.
Weir Frog Co., Cincinnati, O.
West Virginia Rail Co., The, Huntington, W. Va.
Wilson & Co., E. H., Philadelphia, Pa.
Zelicker Supply Co., Walter A., St. Louis, Mo.
- Railroad Frogs and Switches.**
American Frog & Switch Co., Hamilton, O.
Cincinnati Frog & Switch Co., Cincinnati, O.
Kilby Frog & Switch Co., Birmingham, Ala.
Mathes Iron & Metal Co., G. St. Louis, Mo.
May & Turner Co., Atlanta, Ga.
Robinson & Orr, Pittsburgh, Pa.
Sweet's Steel Co., Williamsport, Pa.
Weir Frog Co., Cincinnati, O.
- Railroad Tie.** (Reinforced Concrete.)
Universal Concrete Tie Co., New Orleans, La.
- Rails.** (Steel.)
Baldwin Equipment & Supply Co., Chicago, Ill.
Carnegie Steel Co., Pittsburgh, Pa.
Foster Co., L. B., Pittsburgh, Pa.
Franks, J. E., Atlanta, Ga.
Hoffman & Co., R. C., Baltimore, Md.
Hyde Bros. & Co., Pittsburgh, Pa.
Hyman-Michaels Co., Chicago, Ill.
Indiana Steel & Iron Co., Pittsburgh, Pa.
Levis & Co., Henry, Philadelphia, Pa.
Macleary, J. H., Suffolk, Va.
Mathes Iron & Metal Co., G. St. Louis, Mo.
May & Turner Co., Atlanta, Ga.
National Iron & Steel Co., Houston, Tex.
Newhall Eng. Co., Geo. M., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Robinson & Orr, Pittsburgh, Pa.
Sherwood, E. C., New York, N. Y.
Southern Iron & Equipment Co., Atlanta, Ga.
Steel Rail Supply Co., The, New York, N. Y.
Sweet's Steel Co., Williamsport, Pa.
Tennessee Coal, Iron & R. R. Co., B'gh'm, Ala.
United States Rail Co., Cumberland, Md.
West Virginia Rail Co., The, Huntington, W. Va.
Wilson & Co., E. H., Philadelphia, Pa.
Zelicker Supply Co., Walter A., St. Louis, Mo.
- Rail Braces, Crossings, etc.** [See R.R. Frogs and Switches.]
- Rail Joints.**
Q & O Co., New York, N. Y.
- Railways.** (Industrial.)
Chase Fdry. & Mfg. Co., Columbus, O.
Hunt Co., G. W., West New Brighton, N. Y.
Link-Belt Co., Nictown (Philadelphia), Pa.
- Rams.** (Hydraulic.) [See Hydraulic Rams.]
- Reamers.**
Morse Twist Drill & Mach. Co., New Bedford, Mass.
- Reflectors.**
Holophane Co., Newark, Ohio.
- Refrigerating Machinery and Supplies.**
American Hub Packing Co., New York, N. Y.
- Reinforcing Bars.**
Carnegie Steel Co., Pittsburgh, Pa.
Concrete Steel Co., New York, N. Y.
Concrete Steel Engineering Co., New York, N. Y.
Franklin Steel Co., Franklin, Pa.
- Repairing.** (Power Plants.)
Strickland Mch. Co., Richmond, Va.
- Riveters.** (Pneumatic.)
Chicago Pneumatic Tool Co., Chicago, Ill.
Independent Pneumatic Tool Co., Chicago, Ill.
Ingersoll-Rand Co., New York, N. Y.
- Road Machinery.**
Austin-Western Co., Ltd., The, Chicago, Ill.
Blount, C. F., Atlanta, Ga.
Buffalo Steam Roller Co., Buffalo, N. Y.
Case Threshing Mach. Co., J. I., Racine, Wis.
Gallon Iron Works Co., Gallon, O.
Iroquois Iron Works, Buffalo, N. Y.
Kelly Springfield Road Roller Co., Springfield, O.
Syracuse Chilled Plow Co., Syracuse, N. Y.
Universal Road Mch. Co., Kingston, N. Y.
- Road Oil.**
Gulf Refining Co., Pittsburgh, Pa.
Prime White Road Oil Co., Cincinnati, O.
Standard Oil Co., Inc., Road Oil Dept.
Texas Co., The, New York, N. Y.
- Road Roller.** (Steam.)
Austin-Western Co., Ltd., The, Chicago, Ill.
Buffalo Steam Roller Co., Buffalo, N. Y.
Case Threshing Mach. Co., J. I., Racine, Wis.
Kelly Springfield Road Roller Co., Springfield, O.
Universal Road Mch. Co., Kingston, N. Y.
- Road Plows.**
Case Threshing Mach. Co., J. I., Racine, Wis.
Syracuse Chilled Plow Co., Syracuse, N. Y.
- Road Preservative.**
Gulf Refining Co., Pittsburgh, Pa.
Standard Oil Co., Inc., Road Oil Dept.
Texas Co., The, New York, N. Y.
- Rock Crushers.** [See Crushers, Rock.]
- Roll Grinding and Corrugating.** (Flour Mills.)
Vestch & Co., L. E., Louisville, Ky.
- Roiled Metal Shapes.** (For Building Material Manufacturers.)
United States Metal Products Co., New York, N. Y.
- Rolls.** (Bending and Straightening.)
Bertsch & Co., Cambridge City, Ind.
- Roofers' and Tinners' Supplies.**
Merchant & Evans Co., Philadelphia, Pa.
- Roofing.** (Contractors for Laying.)
Dinaco & Bro., A., Pittsburgh, Pa.
- Roofing.** (Felt, Tar, Asbestos, Asphalt, Tin, etc.)
Allen, Herbert F. L., Washington, D. C.
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Armstrong Mfg. Co., Richmond, Va.
Asphalt Ready Roofing Co., New York, N. Y.
Barber Asphalt Faving Co., Philadelphia, Pa.
Barrett Mfg. Co., Philadelphia, Pa.
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Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.
Johns-Manville Co., H. W., New York, N. Y.
National Roofing Co., Tonawanda, N. Y.
Standard Paint Co., New York, N. Y.
Standard Roofing Co., Tulsa, Okla.
- Roofing.** (Cement.)
Carey Mfg. Co., Philip, Cincinnati, O.
- Roofing.** (Metal Shingles.) [See Shingles, Metal.]
Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.
Cortright Metal Roofing Co., Philadelphia, Pa.
Edwards Mfg. Co., The, Cincinnati, O.
Milwaukee Corrugating Co., Milwaukee, Wis.
- Roofing.** (Slate.)
East Bangor Consol. Slate Co., East Bangor, Pa.
Galt & Sons, John, New York, N. Y.
Genuine Bangor Slate Co., Bangor, Pa.
Hower, J. K., Slatington, Pa.
Johnson, E. J., New York, N. Y.
Reynolds Asphalt Shingle Co., H. M., Grand Rapids, Mich.
- Roofing Tile.**
National Roofing Tile Co., Lima, O.
- Roofing and Siding.** (Bird Sand and Chipped Slate Surfaced.)
Birmingham & Seaman Co., Chicago, Ill.
- Roofing and Siding.** (Flexible Cement, Bar-lap Inserted.)
Birmingham & Seaman Co., Chicago, Ill.
- Roofing and Siding.** (Metal.)
American Rolling Mill Co., Middletown, O.
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Camerson & Barkley Co., Charleston, S. C.
Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.
Cortright Metal Roofing Co., Philadelphia, Pa.
Edwards Mfg. Co., The, Cincinnati, O.
Hyndman Roofing Co., Cincinnati, O.
Milwaukee Corrugating Co., Milwaukee, Wis.
New Orleans Rfg. & Metal Wks., New Orleans, La.
Tennessee Metal Culvert Co., Nashville, Tenn.
Youngstown Sheet & Tube Co., Youngstown, O.
- Rope.**
American Mfg. Co., New York, N. Y.
Broderick & Bascom Rope Co., St. Louis, Mo.
Columbian Rope Co., Auburn, N. Y.
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Sydnor Pump & Well Co., Richmond, Va.
- Saws.** (Band.)
Smith Machine Co., H. B., Smithville, N. J.
- Saws.** (Hack.)
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- Sawmill Dogs.**
Soule Steam Feed Works, Meridian, Miss.
- Sawmills.**
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Gainesville Iron Works, Gainesville, Ga.
- Sawmill Machinery.**
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Case Threshing Mach. Co., J. I., Racine, Wis.
Gibbes Machinery Co., Columbus, S. C.
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Abrasive Material Co., Philadelphia, Pa.
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Vitrified Wheel Co., Westfield, Mass.
- Saw Sharpeners and Files.** (Cotton Gln.)
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- Scales.**
Howe Scale Co., New York, N. Y.
Rome Scale & Mfg. Co., Rome, Ga.
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Walker & Elliott, Wilmington, Del.
- Screens.** (Fly, Window and Door.)
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- Screens.** (Mining.)
Crescon Co., Geo. V., Philadelphia, Pa.
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Jeffrey Mfg. Co., Columbus, O.
Mundt & Sons, Charles, Jersey City, N. J.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
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- Sealer and Stamper.** (Envelope.)
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Ft. Wayne Electric Works, Ft. Wayne, Ind.
- Separators.** (Dust.)
Buffalo Forge Co., Buffalo, N. Y.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
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- Sewer Pipe Machinery.**
Taplin-Rice-Clerkin Co., Akron, O.
- Sewer Pipe.** (Vitrified.)
Riff Sewer Pipe Co., Macon, Ga.
Cannelton Sewer Pipe Co., Cannelton, Ind.
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Pittsburgh-Buffalo Co., Pittsburgh, Pa.
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Stevens Sons Co., H., Macon, Ga.
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- Shafting.** (Polished Steel.)
Field & Co., Inc., Philadelphia, Pa.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
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- Shafting Boxes.**
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- Shapes.** (Rolled Steel, Brass and Bronze.)
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Norton Co., Worcester, Mass.
Vitrified Wheel Co., Westfield, Mass.
- Shears.** (Metal.)
Royerford Fdry. & Mach. Co., Royerford, Pa.
- Sheet Brass and Copper.**
Hussey & Co., C. G., Pittsburgh, Pa.
Merchant & Evans Co., Philadelphia, Pa.
- Sheet Metal Working Machinery.**
Bliss Co., E. W., Brooklyn, N. Y.
- Sheet Steel and Iron.**
American Rolling Mill Co., Middletown, O.
American Sheet & Tin Plate Co., Pittsburgh, Pa.
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La Belle Iron Works, Steubenville, O.
Republic Iron & Steel Co., Youngstown, O.
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Wood Iron & Steel Co., Alan, Philadelphia, Pa.
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- Shingles.** (Asphalt Slate.)
Reynolds Asphalt Shingle Co., H. M., Grand Rapids, Mich.
- Shingles.** (Metal.)
Burriss & Co., John T., Anderson, S. C.
Carolina Portland Cement Co., Charleston, S. C.
Chattanooga Rfg. & Fdry. Co., Chattanooga, Tenn.
Cincinnati Sheet Metal & Rfg. Co., Cincinnati, O.
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Edwards Mfg. Co., Cincinnati, O.
Hyndman Roofing Co., Cincinnati, O.
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- Shipping Tags.**
Dennison Mfg. Co., Boston, Mass.
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Williams Pat. Crush. & Pul. Co., The, Chicago, Ill.
- Shutters.** (Iron.)
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Chesapeake Iron Works, Baltimore, Md.
- Shutters.** (Steel Rolling.)
Kincaid Mfg. Co., Columbus, O.
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Victor Mfg. Co., Newburyport, Mass.
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Birmingham & Seaman Co., Chicago, Ill.
- Signs.** (Metal Lithographed.)
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- Signs.** (Road, Street, Outdoor, Advt.)
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- Skylights and Cornices.**
Milwaukee Corrugating Co., Milwaukee, Wis.
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- Slate.** (Structural, Sanitary, etc.)
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Genuine Bangor Slate Co., Bangor, Pa.
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- Slaters' Tools.**
Galt & Sons, John, New York, N. Y.
- Sluice Gates and Appliances.**
Coldwell-Wilcox Co., Newburgh, N. Y.
- Smokestacks.** (Iron and Steel.)
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Keeler Co., E., Williamsport, Pa.
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- Spikes.** [See Nails and Spikes.]
- Springs.** (Machinery, Railway, Spring.)
American Steel & Wire Co., Chicago, Ill.
Carry Spring Works, New York, N. Y.
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- Sprinklers.** (Automatic.)
General Fire Extinguisher Co., Providence, R. I.

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Barrett Mfg. Co., Philadelphia, Pa.
Carolina Portland Cement Co., Charleston, S. C.
Cercett Waterproofing Co., Chicago, Ill.
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Waterproofing. (For Cement Mortar.)
Cercett Waterproofing Co., Chicago, Ill.

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Cercett Waterproofing Co., Chicago, Ill.
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Waterproof Compound. (Liquid.)
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National Roofing Co., Tonawanda, N. Y.

Water-Softening Apparatus. (Purifying.)
American Water Softener Co., Philadelphia, Pa.
Dodge Manufacturing Co., Mishawaka, Ind.
Gem City Boiler Co., Dayton, O.
Kennicott Co., Chicago Heights, Ill.
N. Y. Cond. Jewell Filtration Co., New York, N. Y.
Roberts Filter Mfg. Co., Philadelphia, Pa.
Seafie & Sons Co., Wm. B., Pittsburg, Pa.
Tucker & Laxton, Charlotte, N. C.

Water Supply Systems. (Town, Home, Railroad, etc.)
Rife Engine Co., New York, N. Y.

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American Pipe & Constr. Co., Philadelphia, Pa.
Bibb Sewer Pipe Co., Macon, Ga.
Blount, C. F., Atlanta, Ga.
Bourbon Copper & Brass Wks. Co., Cincinnati, O.
Coldwater Pump & Mill Eng. Co., Beaver Falls, Pa.
Columbian Iron Works, Chattanooga, Tenn.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Kennedy Valve Mfg. Co., Elmira, N. Y.
Keystone Pump & Well Eng. Co., Beaver Falls, Pa.
Ledette Co., The, Philadelphia, Pa.
McWane Pipe Works, Lynchburg, Va.
Pomona Terra-Cotta Co., Pomona, N. C.
Stevens' Sons Co., H., Macon, Ga.
U. S. Cast Iron Pipe & Fdry. Co., New York, N. Y.

Welgher. (Recording Liquid.)
Worthington, Henry B., New York, N. Y.

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Cook Well Co., The, St. Louis, Mo.
Hughes Speciality Well Drill Co., Charleston, S. C.
Stothoff Bros., Flemington, N. J.
Sydnor Pump & Well Co., Richmond, Va.

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Cook Well Co., The, St. Louis, Mo.
Corvator Pump & Mill Eng. Co., Beaver Falls, Pa.
Williams Bros., Ithaca, N. Y.

Wheels and Axles.
Empire Manufacturing Co., Quincy, Ill.
Oliver Mfg. Co., W. J., Knoxville, Tenn.

Wheelbarrows and Trucks.
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Window Frames and Sashes. (Fireproof.)
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United States Metal Products Co., New York, N. Y.
Voigtmann & Co., Chicago, Ill.

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Baltimore Cooperage Co., Baltimore, Md.
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General Electric Co., Schenectady, N. Y.

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American Steel & Wire Co., Chicago, Ill.
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Youngstown Sheet & Tube Co., Youngstown, O.

Wire Cloth. (Iron, Steel, Brass, etc.)
American Steel & Wire Co., Chicago, Ill.
Caldwell & Sons Co., The H. W., Chicago, Ill.
Diamond Wire Products Co., Columbus, O.
Meyers Mfg. Co., Fred J., Hamilton, O.
New Jersey Wire Cloth Co., Trenton, N. J.
Wight & Co., W. H., New York, N. Y.

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Bolles Iron & Wire Works, J. E., Detroit, Mich.
Buckeye Wire & Iron Works Co., Columbus, O.
Cincinnati Mfg. Co., Cincinnati, O.
Diamond Wire Products Co., Columbus, O.
Dow Wire Works Co., Louisville, Ky.
Dufur & Co., Baltimore, Md.
Dufur, Baggott & Co., Baltimore, Md.
Meyers Mfg. Co., The Fred J., Hamilton, O.
New Jersey Wire Cloth Co., Trenton, N. J.

Wire Netting.
American Steel & Wire Co., Chicago, Ill.
New Jersey Wire Cloth Co., Trenton, N. J.

Wire Rope.
American Steel & Wire Co., Chicago, Ill.
Broderick & Bascom Rope Co., St. Louis, Mo.
Caldwell & Sons Co., The H. W., Buffalo, N. Y.
Roebeling's Sons Co., J. A., Trenton, N. J.
Williamsport Wire Rope Co., Williamsport, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

Wire Rope Clips.
American Hoist & Derrick Co., St. Paul, Minn.

Wire Rope Thimbles.
Broderick & Bascom Rope Co., St. Louis, Mo.

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Woodboring Machines.
Chicago Pneumatic Tool Co., Chicago, Ill.
Ingersoll-Rand Co., New York, N. Y.

Wood-Fiber Plaster.
King & Co., J. B., New York, N. Y.

Wood Pipes. (For Water, etc.)
Wyckoff & Son Co., A., Elmira, N. Y.

Woodworking Machinery.
Gibbs, Leary Co., Columbia, S. C.
Kline, Mchrs. T., Alpena, Mich.
Knight Mfg. Co., Canton, O.
Lane Mfg. Co., Montpelier, Vt.
Over Mfg. Co., Chagrin Falls, O.
Shimer & Sons, Samuel J., Miltois, Pa.
Smith-Courtney Co., H. B., Richmond, Va.
Smith Machine Co., H. B., Smithville, N. J.
Wilmington Iron Works, Wilmington, N. C.

Yarn. (Tanned Sial.)
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Columbian Rope Co., New York, N. Y.
Plymouth Cordage Co., North Plymouth, Mass.
Whitlock Cordage Co., New York, N. Y.

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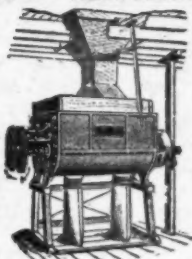
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